An Address ON PATENT FOODS.

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GENTLEMEN,—I wish in the first place to thank you for the honour which you have done me in asking me to come here to open this discussion, for I assure you that I consider it no small honour to be asked to help in the proceedings of a society which is both so active and so practical as I understand yours to be. And in thinking over what would be a suitable subject for discussion by such a society as this, it occurred to me that in considering the question of patent foods we might perhaps be not altogether wasting our time. For I think that I can promise you on my part to put before you some information about the numerous patent foods which are being brought before you which it is not easy for anyone to get hold of unless he has had the time and opportunity to ascertain it for himself or unless he has made very extensive researches into the literature of the subject. On the other hand, I hope to get from you, as practical men constantly dealing with patients, some information as to what you yourselves think of patent foods: what patent foods you use most largely and which are the most acceptable to your patients.

Obviously the first question we have to ask is, What do you mean by a patent food? That is a question which it is more easy to ask than to answer. But everyone knows quite well what a patent food is, though perhaps he cannot state it exactly in words. Practically one may define a patent food as a substance which is manufactured by artificial means from natural food products and which is intended to be used as a substitute for ordinary natural foods, and you know that such foods are usually sold by pharmacists instead of being procurable from the ordinary dealers in common foods. Having defined what is meant by a patent food the next thing one has to ask is what is the necessity for the existence of such foods at all? There are, of course, certain scientific conditions which might justify their existence, although you know perfectly well that most patent foods exist because certain persons have found that it pays to produce them and because they have persuaded the public by assiduous advertisement that these foods are requisite for the sick room. And if I do nothing else to-night than help to put you on all fours with the manufacture of patent foods I feel that I shall not be wasting your time.

Let us consider, first of all, putting aside the commercial reasons for the existence of this large class of foods, the scientific considerations which might justify their manufacture. Obviously, in the first place one might require to use a patent food in cases in which there was marked loss of appetite. If a patient has no relish for ordinary food there may be justification for recourse to artificial preparations. Secondly, one might order such foods if a patient experienced difficulty in chewing or in swallowing. Diseases entailing difficulty in deglutition are those in which some easily-swallowed preparation might be helpful. Thirdly, supposing that there is any marked interference with digestion or absorption in the alimentary canal, there again you might have recourse to foods which are more easily digested than ordinary food is—that is to say, you might use predigested foods. Fourthly, one might conceivably want to increase the amount of any particular ingredient in the diet; for instance, one might wish to increase the amount of fat or the amount of carbohydrate or to augment the quantity of proteid matter, and it might be easier to do this by means of artificial preparations rather than by employing foods with which everyone is acquainted. Fifthly, it might be advisable to have recourse to patent foods where the natural food is for some reason or other unobtainable—in the case, for example, of an infant which cannot get its mother's milk. In such a case it might be advisable to have some artificial substitute. The last of the reasons that I shall give which might justify the existence of artificial foods is that they should be cheap. As a matter of fact, as you will see presently, almost no artificial food on the market meets this requirement. So the ideal of an artificial or patent food would be a substance which was small in bulk, which contained in that small bulk the maximum of nutritious qualities, which was pleasant and stimulating to the appetite, which was easily digested, and which was cheap. That would be an ideal artificial food and if ever that came to be invented it would be a substance which would rightly demand our support and recommendation. But unfortunately the majority of artificial foods do not correspond to any one of those qualifications which I have set out. I propose to tell you very briefly how it is that they fail.

1. The first qualification is the power of stimulating appetite. Is there any artificial food of which you can say that it is a powerful stimulant of the appetite? I think that there is only one group of which that is true—namely, those foods which contain extractives of meat: these certainly stimulate the appetite and have been proved to do so by physiological experiment. By the introduction of meat extract into the mouth a powerful secretion of gastric juice is brought about and the desire for food is increased, but with that exception I think that there is no patent food of which one can say that in the promotion of appetite it can successfully compete with skilful sick-room cooking.

2. If one takes the question of difficulty in swallowing, are there any artificial foods more easily swallowed or chewed than any natural foods? Here, again, there are very few which will answer to the demand, because the first necessity about a food which shall be easily swallowed is that it should be in a liquid form. We have no better liquid food than milk or suitably prepared gruels. If the patient cannot swallow such foods as these there is certainly no artificial food which is likely to be of service. Next there is the question of compactness. I mean by this that if the bulk is small the patient would get the maximum of nourishment from what he could swallow. But there is no food which presents a very great amount of nutriment in a very small bulk and it is physically impossible that it should do so. You will see this if you consider the constituents of food: proteids, carbohydrates, and fats. Meat, for instance, contains 20 per cent. of proteid, the remainder consisting of water, mineral matter, and other ingredients which we do not need to consider. If you drive away from the meat all its water you will get a powder which will consist practically of pure proteid or proteid with a little mineral matter and fat. Seeing that the original meat contained 20 per cent. of proteid and that you have driven off 80 per cent., then obviously what there is left will be only one-fifth of the weight, and it is impossible to get proteid in a more concentrated form than that. If you want carbohydrates you can get no more concentrated carbohydrate food than sugar, because it is practically free from water and it contains no added ingredients. If you want fats you can get no more concentrated form of fat than pure oil, which is a natural food. Again, there are very few preparations which are richer in fat than ordinary butter, which contains fully 80 per cent. of pure fat. So from the point of view of compactness there are very few artificial foods which are superior to the natural foods. And even a preparation from which all the water has been driven off cannot be swallowed unless it is mixed with water again or unless milk or broth is added. You will thus see that in compactness artificial foods do not compare favourably with many natural foods with which we are familiar.

3. Again, there is the question of digestibility. It is often contended for artificial foods that they are more easily digested than natural foods, and many of them, the whole group of peptonised foods, exist because they are predigested. I think there is a great deal of misconception about the need for pre-digested foods. The necessity for peptonising foods is greatly exaggerated. There are very few conditions indeed of the stomach and intestines in which the digestion of the food constituents is not carried on quite well. Many experiments have been made upon that subject and it is surprising how, even in cases in which the stomach and intestines seem to be much disordered from gastro-intestinal catarrh, or even enteric fever, it is found that absorption is still carried on, and how complete it is. The probable reason is that all the digestive glands act really at a very low pressure, that there is an enormous reserve of

power in the alimentary canal, and that if a food escapes from the stomach without being digested it will almost certainly be satisfactorily dealt with in the duodenum, and if not there then in the small intestine. So that the mere fact that the stomach has struck work does not constitute a necessity for recourse to artificial pre-digested foods unless the *motor* power of the stomach is also deficient. I mean by this that so long as the stomach can drive its contents into the bowel there will be no restriction of digestion worthy of the name. As a fact in pathological chemistry pepsin is almost never absent from the gastric juice unless hydrochloric acid is also absent. If you can find hydrochloric acid in the stomach pepsin is sure to be there too. Of course, you know that the cases in which hydrochloric acid is absent from the stomach are very few; it is often in excess, in the condition known as hyperchlorhydria, but it is rarely absent or so reduced as to make any necessity for pre-digested foods.

4. If one considers next the question of increasing any particular constituent of the diet one may ask is it not beneficial to have recourse to artificial foods for this purpose? Here, again, one must admit that we do not know enough about nutrition to say what is the value of enriching the diet in these respects. If you are asked in what direction you want to enrich the diet in a particular case and why, if you are honest I feel sure that you will say that you do not know. There are some diseases, such as diabetes, in which you want to enrich the diet in fat. The diabetic who makes little use of carbohydrates must find some substitute for them, and that substitute is forthcoming in the shape of fat. With regard to carbohydrates there are very few conditions in which you wish to enrich the diet in that respect. What we want to do quite often is to enrich the diet all round; we want to feed the patient up, especially in the case of convalescents. In that case the best thing is to increase all the constituents—the proteids, the carbohydrates, and the fats. To accomplish that there is no easier way than to get the patient to drink such a food as milk, with or between meals. Milk, as you know, is a food which contains all the constituents of food in an easily digestible form. So that the claim which is often put forward for artificial foods that they enable you to enrich the diet in certain constituents is largely fallacious. We do not know enough to enable us so to make use of them.

5. I pass over the use of patent foods as a substitute for human milk, as I shall deal with that point later, and pass to the question of cost.

6. Is it ever justifiable to use an artificial food on the ground of cheapness? Well, if there is one generalisation which you can make about all the patent foods presented to you, it is this—and I make the statement without any reservation whatever—that not one of them is worth the money asked for it, and that some of them contain a ridiculously small amount of nourishment at the price. Compare the units of energy obtained by spending one shilling on some of the patent foods which are presented to you. In Valentine's Meat Juice you get six units of energy for a shilling. In Denneyer's Peptone you get nine units of energy for a shilling. In Somatose, which is so largely advertised, there are 16½ units of energy for the same money. Now let us look at the amount of energy which we get from certain natural foods. In meat we get 511 units of energy for a shilling, in egg 1065 units, in milk 3440 units, and in sugar nearly 5000 units. So you are able to see from that how very badly patent foods compare with common ordinary foods in point of cost. To us as practical men that is one of the greatest disadvantages of patent foods. Except in the case of rich patients their use to any extensive degree is hardly justifiable at all. They cost so much in proportion to the amount of nutriment and benefit which they give that they are most extravagant methods of feeding.

You may reply that all this may be true, but that your patients are not physiological machines—that their needs and demands are not to be judged by physiological experiment or analysis in a chemical laboratory. You may also reply that although it is true that some of these foods do supply very little energy and that at a great cost, and that though they are not really more digestible or more nourishing than ordinary foods are, yet your patients demand them and therefore you must give them. There is, of course, some truth in such a contention: patients have a mental side which has to be considered, and it is the mental influence of some of these foods which may justify their use in the sick-room. It is the old story of the leper who was told to bathe in the river Jordan: the treatment was too simple for him. If you tell a man to drink milk or to take any ordinary food he will probably pay no heed to your advice; but if you tell him to take so-and-so's patent food which he has some trouble to get and for which he has to pay a good deal then he will diligently take large quantities of it and boast that he is doing so. It is that aspect which justifies the introduction of patent foods into practice. But all the more on that account it behoves us to know at least something of the chemical composition of those foods and not to delude ourselves into the belief that we are feeding a patient up and giving him a large amount of nourishment when we are only deferring to his prejudices.

Now we come to consider the composition of the existing foods, and to enable you to follow better what I have to say on that point I have put into your hands a rough classification of most of the patent foods at present in the market. I do not pretend to say that this classification is scientific or logical; it is impossible with illogical products like patent foods to get a really logical classification. I have divided them into five great groups.

CLASSIFICATION OF PATENT FOODS.

I. *Foods intended to supply special nutritive constituents:*
  1. Proteid foods.
    (i.) derived from meat—meat powders: Leube-Rosenthal's Solution.
    (ii.) ,, milk—e.g., Nutrose, Eucasin, Protene, Plasmon.
    (iii.) ,, vegetable sources—e.g., Aleurone.
    (iv.) ,, mixed sources—e.g., Tropon.
  2. Carbohydrate foods—e.g., malt extracts.
  3. Fatty foods.
    (i.) Cod-liver Oil Emulsion.
    (ii.) Petroleum Emulsion.
    (iii.) Pancreatic Emulsion.
  4. Mixed fatty and carbohydrate foods—e.g., Virol, Virvis.

II. *Beef Extracts* (see Table I.).

III. *Beef Juices* (see Table II.).

IV. *Peptonised Foods* (see Table III.).
  (*a*) solid—e.g., Somatose, Peptonoids, &c.
  (*b*) liquid—e.g., Panopepton, Wine of Peptone, &c.

V. *Infant Foods* (see Table IV.).

Let us begin with the first sub-group, those which are intended to supply an extra quantity of proteid. Some are derived directly from meat; they are obtained by driving off the water at a low temperature, leaving behind the dry fibre.[1] By employing a low temperature for this purpose the proteid matter in the meat undergoes no special alteration. Brand's Nutrient Powder is such a preparation. I believe that it may be very useful. It is moderately cheap, because it is simply meat with the water driven off, and it can be easily stirred up into broths or milk. For artificial feeding by the nose or œsophageal tube such preparations have been made much use of, especially in France and in many cases in the asylums of this country, and they do add very largely to the nutritive value of the fluid which you pour down the œsophagus. Leube-Rosenthal's Solution is a partially digested meat in the form of a sludge. It is extremely easily digested and is, I believe, quite a good preparation. It is unfortunate that it has not come more into use in this country, because in Germany it is largely used for cases of gastric ulcer and it is of high nutritive value.

The next class in this sub-group are foods derived from milk. This is a large group in which the proteid of milk—casein—has been separated out in a pure form and is intended to be added to other foods to increase their richness in proteid. Casein presents many advantages: it is colourless, odourless, and tasteless, so that it can be stirred into the food without the patient being aware that it is there. It is free from nuclein compounds, so that it can be taken by gouty people without risk of producing extra uric acid in the body. A large number of preparations of casein have been introduced under special names—e.g., Nutrose (sodium-casein), Eucasin (ammonia-casein), &c. There is also the English preparation, Protene, which is a white flour-like preparation of casein. Lastly, there is one which you will probably be more familiar with, which is very largely used, and which the laity are constantly talking about—Plasmon. Plasmon is a special preparation of casein in which the casein is rendered soluble by the addition, under special conditions, of bicarbonate of sodium. Lastly, there is a

[1] A new preparation, called "Karnold," has recently been brought to my notice which consists of beef, veal, or chicken, so prepared that the proteids of the meat are still in a soluble form. It consists of the pure muscle fibre in the form of a powder from which all connective tissue has been removed and is of extremely high nutritive value. From the examination which I have made of it I am convinced that it will be a very valuable addition to the resources of the sick-room kitchen.

more recent preparation, which you may know, Casumen, an English preparation of very pure soluble casein. What is one to say of them? I think that one may say that they are amongst the most useful of all the artificial foods which have been introduced. There is no doubt that these preparations can be added in very large amount to ordinary foods such as soups and milk and even to some solid foods with great benefit and without the patient being aware of the addition. And seeing that these preparations contain 80 or 90 per cent. of pure proteid you can understand that the amount of nutritive material which they are the means of supplying is considerable. I know of no *special* indications necessitating their use but there are many conditions of disease where one wants to enrich a fluid diet. If a patient is on pure milk, and you want to increase the nutritive value of the milk, then it is that such preparations can be made very useful and you can add them knowing that they will be easily digested and be almost completely absorbed and that they can do the patient no harm. Looking at the subject all round these are amongst the most useful of all the artificial foods and have the further advantage that, as most artificial foods go, they are cheap, because the casein is extracted from skim-milk which would otherwise be thrown away and the preparation can therefore be produced at a low cost.

The third class in this group are those derived from vegetable sources. These were introduced because people wanted to get a cheaper source of proteid, animal sources being necessarily expensive. The one which has been chiefly recommended is Aleurone, which is the proteid of wheat; it is colourless, odourless, tasteless, and fairly soluble. But for some reason or other it has never properly "caught on."

The last class in the group are those containing substances derived from both animal and vegetable sources. The best example of these is Tropon, which is relatively extremely cheap, because it is derived from waste animal and vegetable substances. It was found that by washing away the fat from these substances a powder could be obtained which was practically free from odour and taste, which could be kept indefinitely, and which was also rich in proteid. It was advertised considerably in this country but has not come into large use. It has the disadvantages of not being readily soluble and of having a rather sandy taste.

The next sub-group includes those foods which are intended to supply especially carbohydrates. The best example are the malt extracts. These contain roughly the following proportions: sugar, from 50 to 55 per cent.; soluble starch, from 10 to 15 per cent.; proteids, from 5 to 6 per cent.; and ash, from 1 to 2 per cent. I want to consider for a moment what the value of malt extracts is because they are, perhaps, more largely prescribed than any other patent food. They were originally made because they contained diastase, being prepared by evaporating down an infusion of malted barley at a low temperature so that the ferment is not destroyed by heat, and it was hoped that they would help the digestion of ether starchy foods by converting them into sugar. The consequence of this view is that malt extracts are necessarily expensive as they have to be produced very carefully in case the diastase should be destroyed. When you prescribe malt extract do you ever ask yourselves what it is you particularly want to do? I put that question because I want to ascertain for my own information whether the majority of people who order malt extract have any thought of diastase at all. When you order it are you thinking of giving your patient diastase to help him to digest the rest of his starchy food? Or do you order it for the sugar and proteid matter which it contains? I hope in the discussion which is to follow that I shall get some information on this point. If the medical profession were to say that they only wanted malt extract for the sake of its sugar then the cost of its manufacture might be reduced 50 per cent. I think that the majority who prescribe it do so because they want sugar. But what is the value of malt extract regarded as a source of sugar? These preparations contain only half the weight of sugar that ordinary loaf-sugar contains. You may say that malt extracts contain *malt* sugar, but there is no proof that malt sugar is much superior to other natural sugars. It is true that it is *partly* digested and it certainly seems to agree better with the stomach than cane sugar. But such a substance as honey contains *wholly* digested sugar, ready to be absorbed straight into the blood, and honey contains a larger proportion of dextrose than does anything else I know of. A pound of honey costs 9*d.*; a pound of malt extract costs 3*s.*; and the honey is the better source of sugar of the two. Therefore if one does not want to get diastase one is acting more wisely by ordering honey. But, of course, the patient might laugh at you if you ordered honey whilst he would swallow any quantity of malt extract costing double the price. I would put in a word here for milk sugar or lactose, which is one of the best methods of enriching a diet in carbohydrates. Lactose does not taste sweet and it is a food. It can be added largely to liquid foods without making them unpleasantly sweet. You can stir the lactose into milk and thus increase its food value without adding to its bulk. Certainly I think it deserves a better place among sick-room requisites than it holds.

We now pass to the third sub-group—those which are intended to supply us with fat. The most important of these is cod-liver oil emulsion. Here, again, one is met by the same question as in considering the malt extracts, Why does one order cod-liver oil emulsion? Wherein does the virtue consist? Is it for any particular virtue in the emulsion or is it merely for the fat? I do not know that cod-liver oil fat possesses any special virtues. You believe it to be specially easy of digestion? But in cream you get a more valuable substance, because ordinary cream contains more than 50 per cent. of fat, and butter fat is as easily digested and absorbed as the fat of cod-liver oil, besides having the advantage of being much more palatable and considerably cheaper. So I do not see any reason for ordering cod-liver oil emulsion if you only want an easily digested fat when there are such substances as ordinary cream and butter procurable. I have also put down in this category petroleum emulsion, because it is so largely advertised and because it is, in a sense, one of the most delusive of all these artificial preparations. It is certainly believed by many people to be a substitute for cod-liver oil. A mineral oil like petroleum can never, by any chance, be absorbed into the blood, and any action of petroleum emulsion is purely local and it cannot feed any more than vaseline which you rub into the skin. I took the trouble some time ago to demonstrate that by analysing the fæces of a person who was taking petroleum emulsion. I was able to recover every gramme from the stools; not one single particle of it got near the blood. Even if it did the body could not utilise it because it is a hydrocarbon and not a fat.

Pancreatic emulsion is a fairly well-known preparation and is rather pleasant to taste. It is really emulsified lard flavoured with clove oil. It keeps very well and it is quite easy to take. But it does not contain more fat than butter, which contains 80 per cent., and lard is certainly not more digestible than is butter fat. As long as there is butter in the universe, therefore, I cannot see any excuse, except a psychological one, for manufacturing pancreatic emulsion.

Then we come to the fourth subdivision of the first great group, the mixed fatty and carbohydrate foods. One of these is Virol and another, which has been recently introduced, is Virvis. These are preparations containing essentially malt extract and marrow fat flavoured with lemon juice. Of course, such a preparation has a considerable amount of nutritive value. Virol contains 20 per cent. of fat and 60 per cent. of carbohydrate and two ounces of it cost 9*d.* Virvis is rather cheaper but I have not analysed its constituents. But here again you will see that there is no great virtue in those preparations; they contain a certain amount of fat and carbohydrate; so does chocolate; chocolate contains more fat and more carbohydrate, while ordinary toffee, Everton toffee, consists of equal quantities of fat and carbohydrate without any water. So I cannot see any use for the existence of these things so long as you can prescribe chocolate and Everton toffee—except, of course, a psychological advantage.

I pass next to the beef extracts. I shall deal briefly with these because you have all the essential facts in the analyses which I have put before you in Table I. Beef extracts, in the ordinary sense of the term, are of very little, if any, food value. They contain hardly any proteid; what they chiefly contain are the extractives and mineral matters. Experiment has shown that the extractives are only of use in so far as they stimulate the appetite; they have no other action whatever, they are not foods, they are not true stimulants, and they have no particular influence in the body except that of increasing the appetite for other food. So the place for them is in the kitchen and not in the sick-room. That was fully recognised by Liebig and was only lost sight of by his successors. But then there came people who tried to make meat extracts of food value. They added to the extract meat fibre—as, for example, in the case of

TABLE I.—*Showing the Composition of Beef Extracts.*

—	Liebig's Extract.*	Bovril.†	Bovril for Invalids.‡	Armour's Extract.§	Brand's Essence.‖	Vejos.¶
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Water	18·3	44·4	21·82	15·55	87·17	25·02
Proteids	9·4	16·94	21·42	8·73	5·40	19·35
Gelatin		—	—	2·16	5·03	—
Extractives	30·0	20·32	39·60	43·23	1·01	21·02
Mineral matter ...	23·6	18·32	17·16	25·91	1·39	14·07
Ether extract, &c.	18·6	—	—	4·12	—	17·09 (Carbohydrate).

* Analysis by Tankard. † Analysis by Stützer (quoted by Volt, Münchener Medicinische Wochenschrift, No. 9, 1897). ‡ Analysis supplied by the Company. § Food and Sanitation, Dec. 16th, 1893. ‖ Analysis by Dr. Candy (unpublished). ¶ THE LANCET, April 16th, 1898, p. 1060.

N.B.—"Vejos" is a purely vegetable product, but is included in this table for convenience.

Bovril—and said that by adding this fibre one gives the preparation the value of a food, and so, in the strict scientific sense of the term, one does. But *how much* food value does Bovril contain? If you take a teaspoonful of it you will find that it is equivalent to an ordinary piece of lean meat about half a cubic inch in size (eight grammes). And you cannot take a great quantity of Bovril without producing diarrhœa and thirst on account of the disproportionate quantity of saline matters and extractives which it contains. So the reply to people who assert that Bovril is a food is that their statement is true *in theory*, but that if you gave enough of it to serve as a food *in practice* you would certainly produce unpleasant results. What is true of Bovril is true of other similar substances in equal measure.

Next let us take the beef juices. Beef juices come under a different heading from the extracts. As a matter of fact, they contain the fluid proteid of meat in an uncoagulated form. If you examine them with the spectroscope you will find that most of them yield the spectrum of hæmoglobin. You will see in Table II. analyses of most of the common ones. You will observe that the richest of them in proteid is the preparation called Puro. It is a German preparation, which is of some interest, because originally, I believe, Puro was the concentrated juice of meat preserved in a special way. But on examining recently another preparation of Puro I found that it contained a large proportion of egg albumen. In fact, it amounts to this: that it is a preparation artificially enriched by the addition of white of egg, and I object to paying for white of egg when I am supposed to be paying for the juice of meat. When you ask for meat juice people have no right to give you white of egg. I wrote to the manufacturers and told them so and I got an evasive reply and they declined to continue the correspondence. Puro is unmistakeably the richest of these uncoagulated juices; but it is not all the albumen of meat. Valentine's is the most expensive of all the juices; it is inferior to most of the others, and I know of no respect in which it is superior to any except in the matter of price. If you must use a meat juice, one of the best is Brand's. Bovinine is another extremely interesting product. It hails from Chicago. It yields the spectrum not of hæmoglobin, but of altered blood (methæmoglobin). One point about it is that it contains so little extractive, while all the others are rich in extractives. In fact, Bovinine is suspiciously low in extractives, and one comes to the conclusion from the spectrum examination that it is not properly a meat juice at all, but blood preserved with glycerine, a conclusion which has also been arrived at by Professor Chittenden of Yale University. That accounts for its extremely low price and the great absence of extractives.

TABLE II.—*Showing the Composition of Beef Juices.*

—	Valentine's.*	Puro.†	Bovinine.‡	Brand.§	Wyeth.‖	Armour.¶	Burgoyne.**
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Water	51·21	36·6	81·09	59·15	44·87	74·10	49·51
Proteids	9·65	30·33	13·98	15·45	38·01	8·3	13·0
Extractives	11·16	19·16	3·40	16·55	9·54	8·10	
Mineral matter ...	10·84	9·79	1·02	8·85	17·12	7·51	14·20

* Analysis by Dr. Candy. † Fresenius (Leyden's Handbuch der Ernährungstherapie). ‡ Food and Sanitation, Dec. 23rd, 1893 (Analysis by Chittenden). § Analysis by Dr. Candy (unpublished). ‖ THE LANCET Analysis (quoted by the makers). ¶ Analysis by Dr. Attfield (supplied by the makers). ** Analysis by Dr. Candy.

That disposes of most of the meat juices. You may say of them, as you may say of the extracts, that they contain relatively so little proteid and relatively so much extractive and so much mineral matter that they are practically not foods at all because you cannot take enough of them.

You can manufacture "meat juice" yourself at an absolutely low price. Here is a bottle of it which I manufactured this morning. Take the white of egg, add an equal quantity of water, and strain through muslin, then flavour the mixture with any quantity of Liebig's extract dissolved in a little warm water which you think suitable. By that means you get a preparation extremely rich in coagulated albumen which you can produce at one penny per ounce. And it is one of which the patient can swallow a pailful, if he can get it down, without it doing him any harm. So I see no necessity to buy any of the juices in the market so long as hens exist. That which you make in this way is as good as what you buy, for egg albumen is as nutritious as meat albumen, and it is vastly inferior to it in price.

I have already dealt with the question of peptonised foods when I said that the necessity for their existence is enormously exaggerated. But if you use them at all it is well to know the best foods, and you will find on the sheets which I have handed round an analysis of most of them (see Table III.). A good albumose food is Somatose.

TABLE III.—*Showing the Composition of Peptone Preparations.*

Preparation.	Water.	Soluble proteids (chiefly albumoses).	Extractives and other non-proteid organic matter.	Mineral matter.
	Per cent.	Per cent.	Per cent.	Per cent.
Somatose	9·2	80·0	—	6·7
Carnrick's Peptonoids	5·4	24·0	65·4 (mainly sugar)	5·2
Koch's Peptone	40·16	34·78	15·93	6·29
Liebig's Peptone* ...	31·9	33·40	24·6	9·9
Brand's Beef Peptone	84·6	7·0	—	1·4
Denayer's Peptone†	78·45	12·15	4·32	2·54
Darby's Fluid Meat‡	25·71	30·60	30·18	13·50
Armour's Wine of Peptone	83·0	3·0	12·9	1·1
Fairchild's Panopepton	81·0	3·0	15·0 (largely sugar)	1·0
Peptonised milk§ ...	87·5	1·76	10·04 (= sugar, fat, and unaltered proteid)	0·7

* Leyden's Handbuch der Ernährungstherapie. † Ibid. See also von Noorden, Therapeutische Monatshefte, June, 1892. ‡ Horton Smith: Journal of Physiology, vol. xii., p. 42, 1891, and Leyden's Handbuch. § Horton Smith (loc. cit.).

Valentine's is the most expensive of all the juices; it is inferior in nutritive value to most of the others, and I know of no respect in which it is superior to any except in the matter of price. If you must use a meat juice, one of the best is Brand's. Bovinine is another extremely interesting product. It hails from Chicago. It yields the spectrum not of hæmoglobin, but of altered blood (methæmoglobin). One point about it is that it contains so little extractive, while all the others are rich in extractives. In fact, Bovinine is suspiciously low in extractives, and one comes to the conclusion from the spectrum examination that it is not properly a meat juice at all, but blood preserved with glycerine, a conclusion which has also been arrived at by Professor Chittenden of Yale University. That accounts for its extremely low price and the great absence of extractives.

That disposes of most of the meat juices. You may say of them, as you may say of the extracts, that they contain relatively so little proteid and relatively so much extractive and so much mineral matter that they are practically not foods at all because you cannot take enough of them.

You can manufacture "meat juice" yourself at an absolutely low price. Here is a bottle of it which I manufactured this morning. Take the white of egg, add an equal quantity of water, and strain through muslin, then flavour the mixture with any quantity of Liebig's extract dissolved in a little warm water which you think suitable. By that means you get a preparation extremely rich in coagulated albumen which you can produce at one penny per ounce. And it is one of which the patient can swallow a pailful, if he can get it down, without it doing him any harm. So I see no necessity to buy any of the juices in the market so long as hens exist. That which you make in this way is as good as what you buy, for egg albumen is as nutritious as meat albumen, and it is vastly inferior to it in price.

I have already dealt with the question of peptonised foods when I said that the necessity for their existence is enormously exaggerated. But if you use them at all it is well to know the best foods, and you will find on the sheets which I have handed round an analysis of most of them (see Table III.). A good albumose food is Somatose. It is a very rich one, containing 80 per cent. of digested proteid; it is tasteless, odourless, and can be added to other foods. It has the disadvantage, however, that if it is given in anything like large quantities it is apt to produce diarrhœa and for that reason its use is seriously restricted in practice. You cannot give enough of it to be of real service to your patient without running the risk of producing diarrhœa, but the same is inevitably true of all peptone preparations. As regards the liquid peptones, especially peptone wines, they share all the disadvantages

TABLE IV.—SHOWING THE COMPOSITION OF INFANT FOODS.

Food.	Water	Proteid.	Fat.	Carbohydrate.	Mineral matter.	General description and remarks.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	
Dried human milk	—	12·2	26·4	52·4	2·1	The standard of composition to which artificial substances should conform.
Group I.						
Allenbury No. 1 (for children below the age of three months)	5·7	9·7	14·0	66·85	3·75	Desiccated cow's milk from which the excess of casein has been removed, and a certain proportion of soluble vegetable albumin, milk, sugar, and cream added. No starch present. Half an ounce in three ounces of water for a child aged three months.
Allenbury No. 2 (for children of from the age of three to six months) ...	3·9	9·2	12·3	72·1	3·50	Resembles the above but contains some malted flour in addition. No starch present. One ounce in six ounces of water for a child aged six months.
Horlick's Malted Milk ...	3·7	13·8	3·0	76·8	2·70	A mixture of desiccated milk (50 per cent.), wheat flour (20½ per cent.), barley malt (23 per cent.), and bicarbonate of soda (½ per cent.). Contains no unaltered starch when mixed. Three teaspoonfuls (equals 22 grammes) in four ounces of water for a child aged three months.
Carnrick's Soluble Food ...	5·5	13·6	2·5	76·2	2·20	A mixture of desiccated milk (37½ per cent.), malted wheat flour (37½ per cent.), and milk sugar (25 per cent.). When prepared according to directions the casein is partially digested, but a considerable amount of unchanged starch is left. One part to be mixed with nine parts of water and boiled for a few minutes.
Nestlé's Milk Food	5·5	11·0	4·8	77·4	1·30	A mixture of desiccated Swiss milk, baked wheat flour, and cane sugar (30 per cent.). More than a third of the total amount of carbohydrate is in the form of starch. One ounce to be mixed with five ounces of water.
Manhu Infant Food... ...	3·8	8·7	5·6	75·9	1·00	A mixture of desiccated milk and malted cereals. When prepared according to directions contains a good deal of unaltered starch. A dessertspoonful (equals 13 grammes) to be mixed with two and a half ounces of water.
Group II.—Class A.						
Mellin's Food	6·3	7·9	Trace	82·0	3·80	A completely malted food. All the carbohydrate in a soluble form. May be regarded as a desiccated malt extract. Half a tablespoonful (about five grammes), a quarter of a pint of milk, and a quarter of a pint of water for a child under the age of three months.
Class B.						
avory and Moore's Food	4·5	10·3	1·4	83·2	0·60	Composed of wheat flour with the addition of malt. When prepared according to the directions, most, but not all, of the starch is converted into soluble forms (chiefly dextrins). One or two tablespoonfuls (equals from an ounce to two ounces) to be mixed with two or three tablespoonfuls of cold milk or milk-and-water, and one-third of a pint of boiling milk, or milk-and-water, to be added.
Benger's Food	3·3	10·2	1·2	79·5	0·80	A mixture of wheat flour and pancreatic extract. When prepared according to directions, most, but not all, of the starch is converted into soluble forms. The proteid is also partially digested as well as that of the milk used in mixing it. One tablespoonful (about an ounce) and four tablespoonfuls of cold milk, then add half a pint of boiling milk-and-water; set aside in a warm place for 15 minutes, then bring to the boil.
Allenbury Malted Food ...	6·5	9·2	1·0	82·8	0·50	A mixture of wheat flour and malt. When prepared according to the directions it still contains some unaltered starch. Designed for children above the age of six months; one tablespoonful (about an ounce), a teaspoonful of sugar, and three tablespoonfuls of cold water, mix and add half a pint of boiling milk-and-water (equal parts).
Diastased Farina...	8·3	7·6	1·3	81·7	1·10	A malted farinaceous food. When prepared according to the directions practically all the starch is converted into soluble forms. One ounce of food, half a pint of cold milk, and two ounces of water. Heat slowly till it boils; boil three minutes and sweeten if desired.
Coombe's Malted Food ...	7·9	12·1	2·8	76·8	0·40	A malted farinaceous food. When prepared according to the directions it still contains much unaltered starch.
Nutrose Food...	6·3	15·9	10·3	66·0	1·00	A mixture of cereals with the addition of a certain proportion of peanut flour, from which the somewhat bitter taste of the food and its high proportion of fat are derived. It is a self-digesting food, but when prepared according to the directions only part of the starch is converted. One ounce of the food to be mixed with one ounce of cold water and half a pint of boiling milk-and-water (equal parts) to be added.
Group III.						
Ridge's Food...	7·9	9·2	1·0	81·2	0·70	A baked flour, containing only 3 per cent. of soluble carbohydrates, the remainder being starch. Recommended to be made with milk *or* water. Made with water alone is totally insufficient food.
Neave's Food...	6·5	10·5	1·0	80·4	1·60	Resembles the above but recommended to be made with milk-and-water.
Frame Food Diet	5·0	13·4	1·2	79·4	1·00	A thoroughly baked flour to which have been added cane sugar and some extract of bran. It is *not* specially rich in mineral ingredients, but nitrogenous matters are abundant and it contains much unaltered starch. One-third of an ounce to be mixed with a breakfast-cupful of milk-and-water (one part of milk to two parts of water).
Opmus Food...	10·9	9·1	1·0	78·6	0·40	A granulated wheat food. One teaspoonful to half a pint of milk. Starch unaltered.
"Falona"	7·0	8·4	3·5	79·9	1·20	A mixture of cereals (oats, barley, and wheat), with a ground fat-containing bean. The food is thoroughly baked but contains a considerable proportion of unaltered starch. A teaspoonful to half a pint of boiling milk *or* water, or half milk and half water.
Robinson's Groats	10·4	11·3	1·6	75·0	1·70	Ground oats from which the husk has been removed. Rich in proteid and mineral matter.
Robinson's Patent Barley	10·1	5·1	0·9	82·0	1·90	Ground pearl barley, poor in every element except starch and mineral matter.
Chapman's Whole Flour ...	8·4	9·4	2·0	79·3	0·90	A finely ground whole wheat flour. Not much superior in nutritive value to ordinary "households" flour. Starch entirely unaltered.
Scott's Oat Flour	5·8	9·7	5·0	78·2	1·30	A fine oat flour. Somewhat inferior in nutritive value to "groats." Starch unaltered.

of medicated wines. They are indifferent with regard to the wine, and the other preparations which are added to that wine neither redeem its original failings nor confer upon it any real nutritive value. Moreover, patients who use them are apt to slip into the alcoholic habit unknowingly whilst under the impression that they are merely taking a food.

Lastly, we will glance at the group of infant foods. There are many of them, and they are those which, perhaps, in the ordinary run of practice one has more occasion to prescribe than any that I have mentioned. The number of those infant foods is so vast that it is not to be wondered at that people get confused about their merits. In order to introduce some kind of order into them I divide them into three groups, as shown in Table IV. First of all, those which are intended to be complete substitutes for human milk, on which a child may be healthily reared without further addition. In this group there are first the Allenbury Foods, Horlick's Malted Milk, Carnrick's Soluble Food, and Nestlé's Food. Of these you may say that they are, practically speaking, desiccated milks—milks, that is to say, from which all the water has been driven off, whilst other constituents have been added. I admit that it is possible to feed children healthily on these foods, though they are apt to be deficient in fat; I have reared children on them at Great Ormond-street Hospital for Children. Healthy babies have been reared, for example, on Allenbury Foods. But there is one precaution to take, and that is, when a child gets a little past its first few months one should add to the diet some fresh fruit juice, otherwise scurvy may result. They have also the disadvantage of containing too little fat. But the great drawback in regard to these foods is their cost. It is vastly more expensive to rear a child upon one of them than upon fresh or even condensed milk.

Next we have the malted foods and starchy foods in which the starch is supposed to have been altered by the action of a ferment. Infants below six months old are not expected to take starch and these foods have been introduced to meet that necessity. They are supposed either to contain no starch or the starch which they do contain undergoes conversion into dextrine and sugar in course of preparation for the use of the child. The first of these classes is exemplified by Mellin's Food, which contains no starch at all. It may be regarded for practical purposes as simply a desiccated malt extract and it bears to malt extract very much the same relation that some of the foods of the first group do to condensed milk. If you are going to use one of that class of foods this is as good a one as you can use, but it is only intended to be an addition to milk. Now, what of the other class—namely, those in which the starch is converted during mixing? If you mix them carefully for yourselves you will find that in the majority of them the starch has undergone anything but complete transformation. Now you know the rough haphazard way in which the food is apt to be prepared in the nursery, and I think that those who trust to conversion taking place under these circumstances are very rash indeed. It is better to order a food in which you know conversion has been properly carried out by the manufacturer. Mellin's may be used, but it is extremely poor in fat, and the child's diet is apt to be deficient in that ingredient if such a food enters very largely into it.

The last group is composed of those foods which make no pretence to being malted at all; they are starchy foods pure and simple. Perhaps they have been baked so that the starch grains have been ruptured, but otherwise they are floury preparations, and although many of them are harmless to children who are able to digest starch, and although there may be some use in them in the way of a change, yet they have no real advantages over ordinary simple preparations, such as baked flour or oat flour or any other ordinary cereal preparations. For children below the age of six months they are to be avoided altogether. I think that it must have fallen to the experience of everyone here to have seen a great deal of harm done by a misuse of these foods. In the case of adults who are confined to a semi-fluid diet such preparations may occasionally be of service, but an intelligent manipulation of flour, oatmeal, and infusion of malt will make recourse to them very rarely necessary.

That exhausts the main groups of foods which I have brought to your notice. I can only say, in conclusion, that I hope that you may now feel in a better position to decide which patent food to order if you must order one at all. I hope, also, that to-night you will tell me what your experience of them has been and which of the various kinds you find most useful to you in your ordinary work and most agreeable to your patients.

Five Clinical Lectures

ON

THE CAUSATION AND PREVENTION OF PHTHISIS.[1]

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LECTURE I.

GENTLEMEN,—In the ward cliniques we have had the opportunity of discussing the diagnosis, prognosis, and treatment of phthisis and some other forms of tuberculous disease. To-day I propose to direct your attention to the prevention of phthisis. The subject is one of the greatest practical importance and is attracting much attention at the present time. The profession, the public, the sanitary and municipal authorities throughout the country, and the Government have become fully alive to the facts: (1) that phthisis in its early stages is a curable disease, at all events in a much larger proportion of cases than was at one time supposed; (2) that it is a preventable disease; and (3) that a determined effort should be made to deal with it more effectually than has hitherto been done both in the way of prevention and of cure. His Majesty the King has given the weight of his authority to the movement. It cannot be doubted that the "crusade against phthisis," as it has been termed, will do much to diminish the prevalence of the disease and will be of incalculable benefit to the whole community.

The prevention of phthisis and other forms of tuberculous disease is, however, a very large and complicated problem. And it is, I think, very desirable that it should be clearly understood that success, or perhaps it would be more correct to say a large measure of success—for I doubt whether it will be possible entirely to eradicate and completely to stamp out phthisis and other forms of tuberculous disease with the means of prevention which are at present at our disposal—will only be attained provided that very decided and what to some minds will perhaps seem to be somewhat arbitrary measures of prevention are adopted. For the complete, or anything like the complete, prevention of phthisis and other forms of tuberculous disease (1) the individual efforts of persons affected with phthisis, of their families, medical men, and nurses; (2) the individual efforts of owners of cattle, of dairy-farmers, dairymen, keepers of milkshops, &c.; (3) a united and vigorous effort on the part of the sanitary and

[1] Lectures I., II., and III. were delivered in abstract at the Edinburgh Royal Infirmary in March, 1899; Lectures IV. and V. were delivered in the form of an address to the Fifeshire Medical Association at Kirkcaldy on May 5th, 1899.

[2] Table showing the comparative rates of mortality from tuberculous diseases per million living of the population at all ages during the 45 years 1851 to 1895. (Abstracted from Dr. Tatham's tables in Appendix C. to the report of the last Royal Commission on Tuberculosis.)

Period.	All forms of tuberculous disease.	Phthisis.	Tabes mesenterica.	Tuberculous meningitis.	Scrofula and other forms of tuberculous disease.
1851-60	3483	2679	260	297	147
1861-70	3240	2475	295	347	123
1871-80	2863	2116	318	317	112
1881-85	2540	1820	259	264	157
1886-90	2322	1635	265	241	181
1891-95	2122	1463	238	226	195

municipal authorities throughout the country; and (4), with the object more particularly of the stamping-out of tubercle in cattle, the assistance of the Government will, in my opinion, be necessary. Further, it must understood that the preventive measures, if they are to be thorough and effectual, will involve a very large expenditure of money. But provided that the prevalence of phthisis and other forms of tuberculous disease can be lessened in a material degree—and there is no doubt whatever that this result can and ought to be attained—the cost, even if the money outlay is very great, will not be excessive.

The remarkable reduction in the mortality from phthisis and almost every other form of tuberculous disease (tabes mesenterica apparently excepted) which has been effected during the past 50 years[3] warrants the conclusion that in the near future the mortality from these diseases, which is still so enormous, will be greatly reduced, more especially when it is remembered that the reduction in the past has been chiefly due to general sanitary measures rather than to preventive measures specially directed against phthisis and tubercle. Further, it is, I think, at the outset necessary to point out that the prevention of phthisis and other forms of tuberculous disease will necessarily be a slow and gradual process and that unless some method of prevention more effectual than we are at present acquainted with is discovered—a satisfactory method of inoculation against tubercle, for example—any very large measure of success will probably only be attained after years of vigorous and persistent effort. One must not be disappointed if the results which are obtained are, for a time at least, less satisfactory than some enthusiastic exponents of the movement ("the crusade against phthisis") esteem to anticipate.

In this country phthisis and other forms of tuberculous disease are extremely prevalent; they produce an enormous mortality; they cause more deaths than all the other infectious and contagious diseases put together;[3] the death-roll due to phthisis greatly exceeds that due to any other individual disease, and phthisis is only one form of tuberculous disease. In England and Wales alone considerably more than 40,000 deaths are registered every year from phthisis. Dr. A. Newsholme has pointed out that one-fourth of the total deaths from all causes between the ages of 15 to 25 years are due to phthisis. It is important to remember that the prevention of phthisis is to a large extent synonymous with the prevention of all forms of tuberculous disease. What I mean to say is that if we could abolish phthisis we would necessarily at the same time be doing a very great deal to abolish the other forms of tuberculous disease which affect the human subject, for the sputum of phthisis is, practically speaking, the medium by which the infection of tubercle is conveyed from man to man. And if we could abolish phthisis and if we could at the same time completely eradicate tuberculous disease from our cattle (for the ingestion of tuberculous milk is the second most important source of tuberculous disease in the human subject),[4] it would probably be possible, in the course of time, completely, or almost completely, to eradicate and to stamp out all tuberculous disease in the human subject.

From these statements it will be seen that, in my opinion, the measures which are of most importance, if a real and genuine effort is to be made to reduce the prevalence of phthisis and other forms of tuberculous disease to the lowest limit attainable with our present means of prevention, are: (1) the thorough disinfection or destruction of the sputum of phthisical patients while it is still moist; and (2) the eradication of bovine tuberculosis, or, at all events, the purification of the milk-supply so that no milk containing the tubercle bacillus of bovines is introduced into the gastro-intestinal tract of man. I will refer again to these points when I come to describe in detail the preventive measures which should, I think, be adopted, but I emphasise them at this preliminary stage of my remarks, for although other preventive measures are of great importance, the two which I have just emphasised are, in my opinion, by far the most important. Other measures, such as more careful attention to personal health and hygiene and to local (individual house) general sanitary conditions, will no doubt do much to reduce the mortality from phthisis and some other forms of tuberculous disease, but, in my opinion, they will never *per se* succeed in reducing the prevalence and mortality of the disease to anything like the lowest possible limit which is attainable, and this is the object which should be aimed at and the end which should be kept prominently in view.

THE NATURE AND ETIOLOGY OF PHTHISIS; THE CHANNELS THROUGH WHICH THE TUBERCLE BACILLUS AND ITS SPORES ARE INTRODUCED INTO THE HUMAN SUBJECT, &c.

In order intelligently to carry out effective measures for the prevention of any disease it is necessary to be acquainted with the cause or causes of that disease. This, of course, is a truism, but it is a very important truism. Before, then, describing to you the means which it is advisable to adopt with the object of preventing the development of phthisis it will be necessary to lay before you a series of considerations and propositions with regard to the nature of phthisis, the causation of the disease, the channels through which the tubercle bacillus is introduced into the human subject, and the manner in which the tubercle bacillus is conveyed from one human being to another and from the lower animals to man. The more important points are as follows.

1. All tuberculous affections are due to the introduction into the body of the tubercle bacillus or its spores; without the introduction into the body of the tubercle bacillus or its spores tuberculous disease is never developed.

2. Phthisis is always due to the introduction into the body of the tubercle bacillus or its spores and the development in the lung of tubercles and the lesions (inflammatory, &c.) which are associated with, and which result from, the development and growth of tuberculous lesions in the pulmonary tissues.

3. Phthisis may be either a primary or a secondary tuberculous lesion. In other words, in some cases of phthisis—and they constitute the majority of cases—the tuberculous affection of the lung is the primary tuberculous lesion; or, to put it another way, in primary phthisis, the tuberculous lesion (which in its subsequent and later stages may affect many tissues and organs—i.e., intestines, mesenteric glands, peritoneum, membranes of the brain, &c.) is first developed in the lung or in some part of the respiratory tract. In other cases the phthisis (the tuberculous disease of the lung) is a secondary tuberculous lesion. In these cases the tubercle which has its starting-point in some other, and it may be distant, part, such as the mesenteric glands, subsequently extends through the blood-vessels or lymphatics to the lungs and, it may be, at the same time or subsequently, to other tissues and organs of the body.

4. So far as is known the tubercle bacillus is never generated *de novo* but is always derived from some previous case of tubercle—i.e., from a human being or from an animal, especially a bovine, affected with tubercle.

5. The tubercle bacillus is given off from the bodies of human beings affected with tubercle, either in the sputum, in the fæces, in the urine, or in the discharges from tuberculous lesions (diseased bones, joints, skin ulcerations, &c.). The expired air from a case of phthisis does not contain the tubercle bacillus, but in the act of coughing minute particles of sputum containing tubercle bacilli may be ejected with the expired air into the atmosphere. In cases of phthisis the tubercle bacillus is chiefly given off from the bodies of affected persons in the sputum. It is generally believed that

[3] The following statement (British Medical Association Report on Tuberculosis, Jan. 18th, 1899) shows for each of the three portions of the United Kingdom and for the whole area the annual mortality from tuberculosis and from acute specific diseases per million living at all ages and in each of the first three quinquennial periods of life during the decennium 1881–90:—

		Ages.			All ages.
		0–5	5–10	10–15	
(a) Acute specific diseases.	England and Wales	9130	1839	541	1667
	Ireland	5595	1444	582	1131
	Scotland	9764	1858	591	1774
	United Kingdom	8795	1788	552	1606
(b) Tuberculosis.	England and Wales	4409	844	827	2420
	Ireland	3336	1184	1491	2665
	Scotland	4368	1520	1506	2743
	United Kingdom	4351	962	995	2488

[4] I have added at the end of this lecture a short paragraph regarding Koch's view that there is, practically speaking, little or no risk of bovine tuberculosis being communicated to man.

so long as the sputum remains moist the surrounding atmosphere is not impregnated with the poison (tubercle bacilli or its spores); but if the sputum is allowed to dry and become pulverised the atmosphere may readily become impregnated with the poison. On this point Dr. James B. Russell states:—

> In order to be air-borne the sputum must be dried and broken up into dust. If discharged into a handkerchief it speedily dries, especially if it is put into the pocket or beneath the pillow. In the last stages of consumption the patient becomes weak, the sputum is expelled imperfectly, pillows, sheets, and handkerchiefs are soiled. If a male the beard or moustache is smeared. Even in the hands of the cleanly, without special precautions, such circumstances all tend to the production around the patient of a halo of infected dust maintained by every process of bed-making or of cleaning which includes the pernicious process happily described as "dusting." In the hands of the careless and the dirty the infectivity is, of course, greatly aggravated. It attains its maximum of intensity where the filthy habit of spitting on the floor prevails, especially if carpeted.

The process of drying does not (immediately) destroy the vitality of the tubercle bacillus and its spores. Consequently, dust derived from the dried sputum of a case of phthisis is for a time at least infective; but so far as I know the maximum length of time which the tubercle bacilli and their spores may retain their vitality has not as yet been definitely determined. Dust containing the tubercle bacillus and its spores may certainly remain infective for several weeks, probably, under conditions which are favourable for the retention of their vitality, for several months, and possibly for some years.[5] I say under conditions which are favourable for the retention of their vitality, and the most important seem to be the presence of dirt and the absence of fresh air and of sunlight. On the other hand, there seems every reason to suppose that under conditions which are unfavourable for the retention of their vitality (cleanliness, plenty of fresh air, and of sunlight) the tubercle bacillus and its spores quickly die. On this point Professor G. Sims Woodhead makes the following very important statement:—

> The tubercle bacillus may, under certain conditions, remain and grow in wall-paper and even in certain soils, though this as yet has not been fully proved, but we may take it for granted that outside the animal body the conditions of nutrition and of general temperature are so unfavourable, these unfavourable conditions are so helped by sunlight, by desiccation, by oxidation, and the numerous other influences that interfere with the growth of micro-organisms (especially those that have a distinct parasitic existence), that if we could cut off the supply coming from patients, both human and brute, the danger from infection would soon be reduced practically to the vanishing point.[6]

It seems certain that the dust derived from the dried sputum of cases of phthisis is the chief means by which the tubercle bacillus is conveyed from human beings affected with phthisis to other healthy human beings. The number of tubercle bacilli which are given off in the sputum of a patient affected with phthisis in the course of 24 hours is enormous, and when it is remembered that patients with phthisis continue to expectorate and to give off countless numbers of tubercle bacilli, not only for weeks but for months and, in some cases, for years, the magnitude of this source of infection will be at once realised. On this point Professor William Osler says:—

> Patients with advanced pulmonary tuberculosis throw off in the expectoration countless millions of the bacilli daily. Some idea of the extraordinary numbers may be gained from the studies of Nuttall. From a patient with moderately advanced disease the amount of whose expectoration was from 70 to 130 cubic centimetres daily he estimated by his method that there were in 16 counts, between Jan. 10th and March 1st, from one and a half to four and a third billions of bacilli thrown off in the 24 hours. These figures emphasise the danger associated with phthisical sputa unless most carefully dealt with. When expectorated and allowed to dry the sputum rapidly becomes dust and is distributed far and wide. The observations made by Cornet under Koch's supervision are in this connexion most instructive. He collected the dust from the walls and bedsteads of various localities and determined its virulence or innocuousness by inoculation into susceptible animals. Material was gathered from 21 wards of seven hospitals, three asylums, two prisons, from the surroundings of 62 phthisical patients in private practice, and from 29 other localities in which tuberculous patients were only transient frequenters (out-patient departments, streets, &c.). Of 118 dust samples from hospital wards or the rooms of phthisical patients 40 were infective and produced tuberculosis. Negative results were obtained with the 29 dust samples from the localities occasionally occupied by consumptives. Virulent bacilli were obtained from the dust of the walls of 15 out of 21 medical wards. It is interesting to note that in two wards with many phthisical patients the results were negative, indicating that the dust in such regions is not necessarily infective. The infectiousness of the dust of the medical and surgical divisions of a hospital is in the proportion of 76·6 to 12·5. In a room in which a tuberculous woman had lived the dust from the wall in the neighbourhood of the bed was infective six weeks after her death. No bacilli were found in the dust of an inhalation-chamber for consumptives. The experiments of Strauss at the Charité Hospital, Paris, are important. In the nostrils of 29 assistants, nurses, and ward-tenders he placed plugs of cotton-wool to collect the dust of the wards. In nine of the 29 cases these contained tubercle bacilli and proved to infective animals.[7]

In some cases of tuberculous disease, including some cases of phthisis, in which the intestine is affected with tuberculous ulceration, tubercle bacilli are given off from the bowels—i.e., in the faeces. But this is a much less frequent and important source of infection than the sputum of phthisis. Primary tuberculous disease of the intestines is extremely rare; tuberculous ulceration of the intestine chiefly occurs in acute cases of phthisis with rapidly disseminated tuberculous lesions and in the later stages of chronic cases. Tubercle bacilli may also be given off from the bodies of human beings affected with tubercle in other ways, as, for example, in the urine in which the genito-urinary tract is affected with tubercle; but tuberculous disease of the genito-urinary tract is comparatively rarely developed in cases of phthisis, and primary tuberculous disease of the genito-urinary tract is, in comparison with phthisis, a very rare condition. Consequently in comparison with the sputum of phthisis this is an unimportant source of infection. Discharges from abscesses connected with tuberculous glands, bones, joints, &c., may also be a source of infection but in comparison with the sputum of phthisis this is a very insignificant one. Such discharges contain, in comparison with the sputum of phthisical patients, few tubercle bacilli; the material from scrofulous joints and bone tuberculosis appears to be less virulent than that from other varieties of human tuberculosis; and further, since cases of this kind usually come under the care of the surgeon at a comparatively early stage of their development and are consequently subjected to careful antiseptic treatment, this source of infection as a direct cause of phthisis and other tuberculous affections may for practical purposes be entirely, or almost entirely, ignored. Tuberculous affections of the skin (lupus, tuberculous ulcerations) need not, for practical purposes, be taken into account. In such ulcerative lesions of the skin the tubercle bacillus is present in very sparse quantities and the discharges from such ulcerations may for practical purposes be ignored as a source of infection.

To sum up, tuberculous disease is conveyed from one human being to another by means of the secretions, excretions, and discharges which contain the tubercle bacillus or its spores; these discharges, more especially the sputum of phthisical patients, become dried and pulverised and are inhaled in the form of dust with the inspired air. The sputum of phthisis is by far the most important source of infection by which the tubercle bacillus is conveyed from one human being to another.

6. Further, if dust which contains the tubercle bacillus is capable of producing phthisis and other forms of tuberculous disease when introduced into the bodies of unaffected and susceptible persons, it follows that susceptible persons who inhabit the rooms and houses in which dust which is impregnated with the tubercle bacillus is allowed to remain and to accumulate run some risk of being affected. I say susceptible persons, for, as I will presently point out, the risk which absolutely healthy persons run from inhaling the tubercle bacillus or its spores seems to be, comparatively speaking, small. It is certain that the contagious material (the dust which contains the tubercle bacillus or its spores), unless great attention is paid to cleanliness and disinfection, is apt to retain its vitality in particular houses and rooms (the houses and rooms in which patients affected with phthisis have lived and died) for considerable periods of time and that such houses and rooms are apt to be centres of infection. Dr. Arthur Ransome and others have recorded cases which leave no manner of doubt on this point.

7. Tuberculous disease in the human subject may also be due to the introduction into the body of the tubercle bacillus or its spores derived from the lower animals, and especially from bovines, affected with tubercle; in other words, tuberculous disease in the human subject may be due to the introduction into the gastro-intestinal tract of tuberculous milk or tuberculous meat. Two Royal Commissions have recently considered and reported on the question of tuberculosis in it

[5] A case recently came under my notice in which there seemed reason to suppose that tubercle bacilli or their spores had retained their vitality in a certain room for four years.

[6] Edinburgh Medical Journal, May, 1899, p. 467.

[7] Principles and Practice of Medicine, third edition, p. 281.

relation to food and milk. In the report of the last Commission the following statement occurs :—

We have had before us the unanimous finding of the Royal Commission on Tuberculosis, which reported in 1895 to the effect that tuberculous disease in bovine and other animals is identical with that in the human subject and that it is communicable from one to the other, though the manifestation of the disease differs in some respects in the human subject from that in the lower animals. We have also considered their finding that "any person who takes tuberculous matter into the body as food incurs risk of acquiring tuberculous disease." Nothing that has come before us in the course of our inquiry has raised any doubt in our minds as to the accuracy of this opinion. At the same time we think that there has been a tendency in some minds to exaggerate the extent of the risk arising from meat.

Milk.—Almost all authorities are agreed that tuberculous milk is a frequent and most important cause of tuberculous disease in the human subject. Butter made from tuberculous milk is also infective. And in this connexion it is important to note that while the mortality from tuberculous diseases of all forms, and especially from phthisis, has been enormously reduced of recent years, the mortality from tabes mesenterica, which is by far the most frequent form of tuberculous disease in children and which seems to be chiefly due to infection by tuberculous milk, does not seem to have undergone any noteworthy diminution during the very period of sanitary progress which has been associated with such substantial diminution of death from tuberculous affections at all ages in England and Wales, and that this result has coincided in point of time with a large increase in the consumption of milk. The full statement of the Royal Commission on this point is as follows :—

We note, therefore, with satisfaction that death from tuberculous disease in all its forms and at all ages has steadily fallen from 3483 per million during 1851-60 to 2122 during 1891-95—a diminution of 39·1 per cent.—and also that at every age period for which statistics are available there has likewise been a decrease, sometimes of a very substantial character. Further, taking the age period of 15-45 years as the period of life when meat forms a very prominent article of food and dividing that term into five-yearly or 10-yearly periods, we find that the diminution of death from tuberculous disease has ranged from 52·8 per cent. at the age-period 15-20 years to 30·8 per cent. at the age-period 35-45 years. In recording this enormous reduction in the amount of death from this cause we must recall the fact that during this age period phthisis is the form of registered death which altogether overwhelms all other forms of fatal tuberculous affections and that phthisis may be considered as due to the reception of tuberculous infection rather by the respiratory than by the digestive tract. For the age-period 0-5 years there has also been a reduction in death from tuberculous disease in all forms from 5764 per million living at that age in 1851-60 to 4155 in 1891-95—a diminution of 27·9 per cent. This reduction is, however, but little more than half that which has taken place at the age-periods 15-20 and 20-25 years; and when we come to examine that form of tuberculous disease—namely, tabes mesenterica—which is believed to be mainly due to infection received by the digestive tract we find that whilst at the age-period 0-5 years, when milk forms so important an article of diet, the rate of death per million living has shown first increase, then decrease, yet the rate which stood at 1625 during 1851-60 had only fallen to 1577 for the period 1891-95, a diminution of but 3·0 per cent. In this connexion we feel it necessary to recall the fact that the term tabes mesenterica as used in our death records is very indefinite and that it has comprised, and doubtless still comprises, a considerable amount of death from certain diarrhœal affections which are not really tuberculous. But whilst this is so it must also be remembered that the rate of mortality from tabes mesenterica, which more than any other represents tuberculosis in infancy, has signally failed to undergo any noteworthy diminution during the very period of sanitary progress which has been associated with such substantial diminution of death from tuberculous affections at all ages in England and Wales, and that this result has coincided in point of time with a large increase in the consumption of milk.

Although authorities are not absolutely agreed upon this point the weight of evidence seems strongly in favour of the view that the milk of a cow affected with tubercle only becomes tuberculous—i.e., contains the tubercle bacillus or spores—when the milk-producing apparatus (mammary glands, milk ducts, and udders) is itself affected with local tuberculous disease. In other words, the great majority of authorities are agreed that the mere presence of tuberculous disease of the internal organs is not attended with the presence of the tubercle bacillus or its spores in the milk. On this point the Royal Commission states :—

Considerable difference of opinion exists among experts as to the extent to which a cow may be affected with tuberculosis without rendering her milk dangerous. It was not proved to our satisfaction that tubercle bacilli had ever been detected in milk unless drawn from a cow with tuberculosis of the mammary gland.

Dr. Sidney Martin's observations and opinions on this point are very definite. He concludes that :—

When tuberculosis of the cow affects only the internal organs and not the udder the milk is not infective, but that in all cases where the udder is tuberculous the milk becomes infective and is indeed often extremely virulent. Moreover, the butter, butter-milk, and skimmed milk obtained from this class of milk is also extremely infective. There is no question, therefore, that this class of milk ought not to be used as food and it is certain that its exclusion would lead to a great diminution in the large number of cases of tuberculosis that occur in children.

Infection by tuberculous milk is a most important source of tuberculous disease, more particularly of the mesenteric glands, and therefore of generalised tuberculosis and secondary tuberculous lesions in other organs and tissues, and consequently in the lungs—i.e., of secondary phthisis. Infection by tuberculous milk seems chiefly to occur in children and is, so far as we know, comparatively speaking, rare in adults. It is possible, however, as Dr. James Niven has suggested, that adults are more frequently infected through it than is usually supposed.[8]

With regard to the frequency with which infants and children are affected with tuberculosis and the frequency with which children are infected through tuberculous milk the following statement from the report of the British Medical Association on tuberculosis is of importance :—

Experience has further shown that infants and children dying of respiratory and wasting diseases are in a large proportion affected by tuberculosis although the patients have not presented obvious symptoms of the disease during life. The mortality from tuberculosis in early childhood is not decreasing as it is at other ages in the United Kingdom, and the opinion that this great prevalence of the disease in infancy and childhood is due to infection through the alimentary canal by milk from tuberculous cows appears to be well founded. The following table, showing the mean death-rates from tabes mesenterica in England and Wales among infants under one year of age per million living, is given by Sir Richard Thorne Thorne in his second Harben Lecture :—

1851-60	3160	1881-85	4356
1861-70	3800	1886-90	4462
1871-80	4467	1891-95	4046[9]

I do not, of course, mean to imply that in all cases in which tubercle has its starting-point in the mesenteric glands or gastro-intestinal tract the disease is due to tuberculous milk. There is every reason to believe that in some, perhaps a considerable proportion of, cases the tubercle bacillus and its spores are inhaled with the inspired air and then swallowed; and in the great majority of cases in which the infection is introduced into the body in this way the poison (tubercle bacillus) is derived from cases of phthisis. It has also been suggested that tubercle may be communicated to a healthy child by kissing (the tuberculous sputum from the mouth of the affected person getting on to the lips and thence into the alimentary canal of the non-affected person); through the milk of a tuberculous mother or nurse (this must be exceedingly rare, for in the human subject the mammary gland and nipple are very rarely indeed affected with tubercle); by a tuberculous dog or cat licking the face of a healthy child, &c. But every experienced and judicially-minded observer who takes an unprejudiced view of the question will, I think, allow that such methods of propagation, with perhaps the exception of kissing (for it is not improbable that this is a more frequent mode of infection than is generally supposed), are so extremely infrequent and so exceptional—I would even venture to say so fanciful—that they may for practical purposes be entirely ignored. In short, it cannot, I think, be doubted that the tubercle bacillus is very frequently introduced into the bodies of children through the gastro-intestinal tract by means of tuberculous milk. Against this view it has been argued that milk cannot be such a potent channel of infection as is usually supposed, since tabes mesenterica and other forms of tubercle are more common in the poor than in the rich and since the children of the poor drink much less milk than the children of the rich. But this argument does not carry conviction to my mind. In my opinion the reasons why tabes mesenterica and other forms of tuberculous disease more frequently result in the children of the poor than in the children of the rich from the ingestion of tuberculous milk are—(1) that in the children of the poor the gastro-intestinal tract and mesenteric glands are so much more frequently in an unhealthy condition (the gastro-intestinal tract is in a condition to absorb the tubercle bacillus or the mesenteric glands are in a condition to form a suitable nidus for its development); and (2) that in consequence of lowered vitality (due to insufficient food, insanitary surroundings, &c.) the resisting power—the vital resistance as it has been termed—of the

[8] Manchester Medical Chronicle, vol. vii., 1897, p. 8.
[9] British Medical Association: Report on Tuberculosis, Jan. 12th, 1899.

poor child against the tubercle bacillus is less than the resisting power of the rich and well-cared-for child.

That a large amount of tuberculous disease in the human subject, and especially in young children, is due to the drinking of tuberculous milk seems to be shown, as has already been pointed out, by the facts: (1) that while the death-rate from all forms of tuberculous disease and especially from phthisis during the age-period from birth to five years—the milk-drinking age *par excellence*—has during the 45 years from 1851 to 1895 markedly diminished (the diminution from all forms of tuberculous disease being 29·9 per cent. and the diminution from phthisis being 66 per cent.), the death-rate from tabes mesenterica has during the same age-period diminished only 3 per cent., and below one year of age the mortality from tabes mesenterica has during the same period of time (1851 to 1895) apparently increased by no less than 27·7 per cent.;[10] and (2) that during this period (from 1851 to 1895) there has been a very large increase in the consumption of milk.[11]

Tuberculous meat.—Tuberculous meat is probably also an occasional but, so far as is known, by no means a frequent, cause of tubercle in the human subject. On this point the Royal Commissioners state:—

> At the same time we think there has been a tendency in some minds to exaggerate the extent of the risk arising from meat. ..... When, some years ago, tuberculosis in human beings and other animals was first proved to be interchangeable we think that an exaggerated view was taken of the extent of the danger arising from meat, and that this view is still acted on in certain places.

Highly tuberculous meat is rarely sold for human food and rarely eaten, for a marked degree of tuberculosis in meat is readily perceived by the naked eye. Further, thorough cooking destroys the vitality of the tubercle bacillus; hence, mere surface contamination of the (sound) flesh of a tuberculous animal, such as may be produced by the knife of the butcher in dressing the carcass, is not likely to lead to the production of tuberculosis in the human subject, at all events in this country. It is very different in the case of milk. The tuberculous character of milk can only be recognised by the skilled observer—i.e., after bacteriological examination or after cultivation or inoculation experiments. Further, milk is usually consumed in the uncooked state. Again, it must be remembered that milk is an admirable nidus for the development of micro-organisms. Hence, when milk is tuberculous the dose of the poison (the tubercle bacillus) is apt to be a large one and the intensity of the poison (owing to the high state of vitality of the bacilli) is often very great.

That comparatively little tuberculous disease in the human subject is due to eating tuberculous meat seems shown by the facts: "(1) That during the 45 years (from 1851 to 1895) the diminution of the death-rate from all forms of tuberculous disease during the age-period from 15 to 45—*the meat-eating age as it may be termed*—has been 45 per cent. and the diminution in the death-rate from phthisis has been 48 per cent.; and (2) that during this same period of time (1851 to 1895) there has been in this country an enormous increase in the amount of meat consumed."[12]

So far as is at present known tuberculous disease is almost exclusively conveyed from the lower animals to the human subject through the medium of tuberculous milk or tuberculous meat (the flesh of tuberculous cows or pigs). In both cases the tubercle bacilli or their spores are introduced into the alimentary canal of the human subject. It seems probable that the tubercle bacilli introduced in this way usually first produce (local) tuberculous disease in the mesenteric glands, and subsequently, after becoming diffused, (secondary) tuberculous disease of the lungs and other organs. It is, however, highly probable that in some cases in which tubercle bacilli are introduced into the gastro-intestinal tract they are carried by the blood to the lungs or other tissues (cerebral membranes, for example), where they produce primary tuberculous lesions—i.e., without first producing local tuberculous disease in the intestinal or mesenteric glands. In this connexion I would direct attention to the following statement of Dr. Sidney Martin—viz.: "It must be granted, from the experiments in pigs which have been recorded, that it (milk) may also be a source of tuberculous (scrofulous) glands in the neck."[13]

8. The chief sources of tubercle in the human subject are (1) the sputum of human beings affected with phthisis, and (2) the milk of cows affected with local tuberculous disease of the milk-producing apparatus (udders, &c.).

9. Primary tuberculous disease of the lungs seems to be comparatively rarely due to infection by tuberculous milk or tuberculous meat. It is probable that when children are affected with phthisis the tuberculous lung affection is either produced in the ordinary way (the tubercle bacillus being inhaled and introduced into the respiratory tract or, after alighting on the pharynx, into the gastro-intestinal tract) or that the phthisis is secondary to tuberculous disease of the mesenteric glands. Primary phthisis appears to be, comparatively speaking, rare in infancy and childhood. Though phthisis may occur at any age it chiefly occurs during active adult life, the greatest number of deaths occurring between the ages of 35 and 45 years. It has been suggested that the disease is overlooked in children owing to the fact that children do not expectorate. But this explanation cannot be accepted, for it is an actual fact, definitely proved by post-mortem observation, that phthisis (I mean the condition which we clinically term phthisis, I exclude miliary tuberculosis of the lungs without cavity formation) is very rarely met with in children compared with its frequency in the adult. The reason seems to be that the resisting power of the lung of the child is greater than the resisting power of the lung of the adult, or, as Sir Hugh Beevor puts it, "It is the power of the lung to resist infection which determines the curve of the phthisis rate at early ages."[14]

10. The channels through which the tubercle bacillus or its spores are introduced into the human subject. The tubercle bacillus or its spores may be introduced into the human subject either (1) with the inspired air; (2) with food or drink; or (3) by means of inoculation.

Infection through the inspired air.—When the tubercle bacillus or its spores are introduced with the inspired air the poison is in the great majority of cases derived from the dried sputum of cases of phthisis, though other discharges which contain the tubercle bacillus or its spores and which become dry and pulverised, may, of course, be the source of the poison. When the tubercle bacillus or its spores are inhaled in the inspired air, the poison may pass into the respiratory passages and may alight on the larynx, bronchial mucous membrane, or possibly the terminal air cells of the lung, or it may alight on the nasal mucous membrane, tonsils, or pharynx. Absorption from the tonsils and throat is probably a frequent cause of tuberculous disease, more particularly of tuberculous (scrofulous) disease of the cervical glands. Tubercle bacilli which are inhaled with the inspired air may, instead of passing into the respiratory tract, be swallowed and be absorbed from the gastro-intestinal tract, producing tuberculous disease of the mesenteric glands, &c.

Infection through the gastro-intestinal tract.—The frequency with which tabes mesenterica and other forms of tuberculosis seem to be produced in children through the introduction of tuberculous milk into the gastro-intestinal canal has already been pointed out. Possibly tuberculous disease in the adult is more frequently due to tuberculous milk than is usually supposed.

Infection by means of inoculation.—In man inoculation seems very rarely to produce internal tuberculosis. When tubercle is induced in this way it usually remains local. The warty affection which occasionally occurs on the hands of the pathologist has been proved to be a local form of tuberculosis. Butchers occasionally contract the same form of (local) tubercle from dressing diseased (tuberculous) carcasses. In cases of primary phthisis the poison seems, in the great majority of cases, to be introduced into some part of the respiratory tract with the inspired air—air which contains the tubercle bacillus or its spores.

ADDENDUM: PROFESSOR KOCH'S VIEWS REGARDING BOVINE AND HUMAN TUBERCULOSIS.

In his address at the British Congress on Tuberculosis

[10] Absolute reliance cannot, I think, be placed on these figures. I do not mean to imply that they do not accurately represent the exact numbers and causes of death as registered. They of course do so. But exactness of diagnosis and classification have without doubt varied during the past 45 years. Hence we cannot be at all certain that cases which are now classed as tabes mesenterica were so classed 45 years ago, and *vice versâ*. Further, as the last Royal Commission on Tuberculosis points out, the term "tabes mesenterica" is used in a very loose way. Many cases of diarrhœa in children are classed as tabes mesenterica; but in true tabes mesenterica (tuberculous disease of the mesenteric glands) diarrhœa is often absent, for in the great majority of cases of tabes mesenterica there is no tuberculous ulceration of the intestine.

[11] Sir R. Thorne Thorne: Harleian Lectures, 1898, p. 29.

[12] Ibid., p. 19.

[13] Clifford Allbutt's System of Medicine, vol. ii., p. 29.

[14] THE LANCET, April 15th, 1899, p. 1006.

(July 23rd, 1901) Professor Koch made the following statement: "Though the important question whether man is susceptible to bovine tuberculosis at all is not yet absolutely decided, and will not admit of absolute decision to-day or to-morrow, one is nevertheless at liberty to say that if such a susceptibility really exists the infection of human beings is but a very rare occurrence. I should estimate the extent of infection by milk and flesh of tuberculous cattle and the butter made of their milk as hardly greater than that of hereditary transmission and I therefore do not deem it advisable to take any measures against it." Professor Koch based this remarkable opinion: (1) upon the belief, founded on experiment and observation, that human and bovine tuberculosis are not identical; (2) upon a series of experiments which seemed to show that human tuberculosis is not communicable to cattle; and (3) upon the fact that primary tuberculosis (tuberculous ulceration, &c.) of the intestinal tract is extremely rare in man. He consequently concluded that bovine tuberculosis is very rarely, if ever, communicated to man by means of tuberculous milk and tuberculous meat. These conclusions and the data on which they are founded have not as yet been accepted by the profession.

Many leading authorities maintain that human tuberculosis *is* communicable to cattle. Further, it is argued that even if human tuberculosis cannot be communicated to cattle or can only with difficulty be communicated to cattle, it does not follow that bovine tuberculosis cannot be communicated, or can only with difficulty be communicated, to man. Again, as Lord Lister pointed out in proposing a vote of thanks to Professor Koch for his address, the fact that primary tuberculosis of the intestinal tract is very rare in man does not, as Professor Koch maintains, prove that the ingestion of tuberculous milk is incapable of producing tuberculous disease in the human subject, for, in this country at all events, it has for years been a matter of common belief that tuberculous milk produces its injurious effects, not directly upon the gastro-intestinal tract (by leading to the production of primary tuberculosis (tuberculous ulceration, &c., of the intestine), but by producing tuberculous disease of the mesenteric glands.[13] But coming as it did from the discoverer of the tubercle bacillus—the leading authority on tubercle—Professor Koch's opinion has necessarily unsettled the whole question. The matter is still *sub judice* and is being actively investigated by commissions and skilled observers all over the civilised world. In the meantime I see no reason to modify the views which I have expressed in my lecture. With some verbal alterations it is printed in the form in which it originally was written. I am most emphatically of opinion that until the question is definitely settled we should continue to take every precaution to prevent the introduction of tuberculous milk into the gastro-intestinal tract of man. Who amongst us, I ask, would drink milk or would allow his children to drink milk knowing that it was tuberculous?

But while I see no reason to modify the opinions which have been expressed in this lecture I devoutly hope and trust that Professor Koch's observations and views may be substantiated; for if it should be conclusively proved, after prolonged and exhaustive observation and investigation, that Professor Koch is correct in thinking that bovine tuberculosis is incommunicable, or only very slightly communicable, to man, that there is, practically speaking, little or no risk from the ingestion of tuberculous milk and tuberculous meat, and that it is unnecessary to take any precautionary measures against bovine tuberculosis, it will be a singularly fortunate thing for the human race. If Professor Koch's views are correct the prevention of phthisis and other forms of tuberculous disease in the human subject will be a comparatively simple and easy matter, for then the fundamental point to be aimed at will be the destruction and disinfection of phthisical (tuberculous) sputum.

[13] This view has been fully set forth in the body of my lecture.

SMALL-POX IN DARTMOOR PRISON.—At the meeting of the Tavistock board of guardians held on June 27th Mr. C. C. Brodrick, the medical officer of health of Tavistock rural district, reported that two convicts in Dartmoor prison were suffering from small-pox. They had been resident in the prison for six and 12 months respectively. He considered the disease must have been imported from London by an escort. It was resolved that tents should be erected for the treatment of the cases.

ON SOME NEW PROCEDURES FOR THE EXAMINATION OF THE BLOOD AND OF BACTERIAL CULTURES,

IN PARTICULAR

(1) ON THE POSSIBILITY OF DISPENSING WITH THE STANDARD PIPETTES AND MICROMETRICAL RULINGS OF THE HÆMOCYTOMETER,

(2) ON A METHOD OF DETERMINING UNDER THE MICROSCOPE THE NUMBER OF MICRO-ORGANISMS CONTAINED IN A BACTERIAL CULTURE, AND

(3) ON A SIMPLE PROCEDURE FOR OBTAINING COAGULATION TUBES OF STANDARD CALIBRE; ALSO, AS INTRODUCTORY TO THIS LAST, A NOTE ON THE PRACTICAL IMPORTANCE OF THE INFORMATION OBTAINED FROM THE COAGULOMETER.

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THE series of methods which I have described (for the most part in THE LANCET) for measuring (*a*) the coagulability,[1] (*b*) the alkalinity,[2] (*c*) the agglutinating power,[3] (*d*) the content in calcium salts,[4] and (*e*) the bactericidal power of the blood[5]; further (*f*) the method devised by my colleague, Major W. B. Leishman, R.A.M.C., for measuring the phagocytic power of the blood[6]; and lastly (*g*) the method described by me for determining by a cultural process the number of living micro-organisms contained in a bacterial culture,[7] all involve the use of capillary tubes for the purpose of measurement. 1. In the case of the majority of the quantitative procedures enumerated above the preliminary measuring, diluting, and mixing operations which are involved can be carried out in uncalibrated capillary tubes by the method which I have described for making measurements, dilutions, and mixtures in such tubes. Uncalibrated capillary tubes can be used in particular for measuring the alkalinity, the content in lime salts, and the agglutinating, bactericidal, and phagocytic power of the blood. It will presently appear that such tubes may be employed also in connexion with the measurements which are ancillary to the enumeration of bacteria or red blood corpuscles under the microscope. 2. For the determination by cultural processes of the number of micro-organisms in a bacterial culture we require capillary tubes marked off in divisions corresponding to definitely known volumes of fluid. 3. Lastly, for the measurement of the coagulability of the blood—since here the area of glass surface which comes in contact with the blood comes into consideration—we require capillary tubes of a standard calibre.

I may before dealing with the special subject-matters of this paper briefly set out, though this will involve my traversing again some ground already gone over in previous papers, the system of technique which enables us (*a*) to make accurate quantitative determinations in uncalibrated capillary tubes, (*b*) to divide capillary tubes into divisions corresponding to known volumes of fluid, and (*c*) to mark off upon any capillary tube a measured length which conforms to a standard bore.

1. *Method of making quantitative estimations in uncalibrated capillary tubes.*—We proceed as follows. We take in hand a piece of glass tubing, heat it, and draw it out into a capillary stem of any convenient size. We provide ourselves with a rubber teat which will fit tightly upon the upper wide end of our tube and with a glass writing pencil. A mark having been placed with the last upon the capillary stem at any convenient distance from its orifice, and a negative pressure having been established in the interior of the tube by means of the teat, we draw up in succession into the capillary stem (*a*) a volume of the dilutand such as will suffice to fill the capillary stem as far as the division mark, (*b*) an air-bubble to serve as an index, and (*c*) the required number of volumes of diluting fluid, these being separated

[1] Brit. Med. Jour., July 29th, 1893; and Feb. 3rd, 1894.
[2] THE LANCET, Sept. 18th, 1897, p. 719.
[3] Brit. Med. Jour., Jan. 16th, 1897.
[4] Transactions of the Pathological Society of London, 1900, p. 304.
[5] THE LANCET, Dec. 1st, 1900, p. 1566; March 2nd (p. 639) and June 1st, 1901 (p. 1532).
[6] Brit. Med. Jour., Jan. 11th, 1902.
[7] THE LANCET, June 1st, 1901, p. 1532.

from each other in each case by a bubble of air. Mixture of the dilutand and diluting fluid is effected in the neck of the tube. The dilution thus obtained having been blown out into a watchglass or other convenient receptacle we begin again and, using the same procedure, draw up into the pipette (*a*) one volume of the diluted blood or, as the case may be, of the diluted reagent; (*b*) an air bubble; and (*c*) in the case where we have made graduated dilutions of the blood, one volume of the reagent, or in the case where we have made graduated dilutions of the reagent, one volume of the undiluted blood or serum. We mix these as in the previous operation in the neck of the tube.

The following points may be noted with regard to the diluting operations.

a. The most convenient rule to follow in making the dilutions is, having expressed the dilution we desire to arrive at in the form of a vulgar fraction, to introduce into the capillary tube whatever number of volumes of the dilutand corresponds to the numerator of the fraction, and then to fill in of the diluting fluid whatever number of volumes is required to make the total number of volumes correspond to the denominator of the fraction.

Example.—To arrive at a $\frac{1}{10}$ dilution we take one volume of the dilutand and nine volumes of the diluting fluid. To arrive at a $\frac{3}{4}$ dilution we take three volumes of the dilutand and four volumes of the diluting fluid.

b. Where dilution by the method just described becomes laborious, and it begins to become laborious as soon as the number of volumes which we have to introduce exceeds 10, the desired dilution is best arrived at by two or more successive operations.

Examples.—Where a dilution of $\frac{1}{150}$ is desired we substitute for this expression the expression $\frac{1}{10} \times \frac{1}{15}$, and we make first a dilution of 1 in 10, and then further dilute tenfold one volume of this tenfold dilution.

Where a dilution of $\frac{1}{64}$ is to be arrived at, it may be arrived at by making first a $\frac{1}{8}$ dilution, and further diluting one volume of this five times, but if we happen to have some other dilution ready to hand—such, for instance, as a $\frac{1}{25}$ dilution—we may, expressing the further dilution required as a dilution of $\frac{2}{5}$, arrive at the required dilution by adding to six volumes of the $\frac{1}{25}$ dilution one volume of diluting fluid.

c. Where extreme dilutions are required—and these are required in enumerating bacterial cultures and in dealing with bloods which possess a high agglutinating or very low bactericidal power—much labour will be saved by making a diluting pipette which allows of a dilution of $\frac{1}{10}$ being arrived at *uno saltu*. I have figured such a pipette in a previous communication.[9] With such a pipette a dilution of $\frac{1}{10 \times 10 \times 10}$ would be arrived at by three successive dilutions of 1 in 100.

d. An economy of time and labour can often be practised by undertaking the dilution and the testing of the blood in a single operation.

Examples.—Where we desire to test the agglutinating action of a serum in a 10-fold dilution on a culture of the typhoid bacillus or the micrococcus Melitensis the simplest procedure is to fill in to the capillary stem first one volume of serum, then four volumes of indifferent diluting fluid, and then five volumes of the living or dead bacterial culture.

Or, if a 5-fold dilution of serum is already to hand and we desire to test the blood in a 10- 20- and 40-fold dilution, we fill *into the first tube for the 10-fold dilution*, one volume of 5-fold diluted serum and one volume of culture; *into the second tube for the 20-fold dilution* one volume of the same dilution of serum, one volume of any indifferent diluting fluid, and two volumes of bacterial culture; and into *the third tube for the 40-fold dilution* one volume of the same dilution of serum, three volumes of the diluting fluid, and four volumes of culture.

2. *Method of marking off upon a capillary tube divisions corresponding to a definitely known volume of fluid.*—The carrying out of this volumetric calibration is an absolutely simple matter. All that is necessary is (*a*) to take in hand a standard capillary pipette such as is supplied with the Gowers' hæmocytometer, (*b*) to fit on to it a tightly fitting rubber teat, (*c*) to fill the pipette up to the division mark with mercury, (*d*) to introduce this measured volume of mercury into the wide upper end of a drawn-out glass tube, (*e*) to blow the globule down into the capillary stem, and (*f*) to mark off on the outside of this stem the points corresponding to the upper and lower limits of the mercury column.

Standardised capillary tubes made by the method here described present advantages in connexion with bacteriological technique which ought to ensure their universal adoption in lieu of the platinum loops which at present constitute the bacteriologist's "unit" of measurement. As compared with the thick-walled standard pipettes of the glass-blower the thin-walled standardised capillary pipettes described above present the advantages (*a*) of costing nothing, (*b*) of being readily sterilisable, and (*c*) of avoiding loss from the spreading of the fluid by capillary attraction over the outside of the tube, and thus giving more accurate measurements.

3. *Method of marking off upon a capillary tube a measured length which conforms to a standard bore.*—This is almost as simple an operation as that of marking off upon a tube divisions which correspond to a standard measure of volume. The calibre is arrived at by calculating from the formula $\frac{\pi}{4} d^2 l$ = cubic contents of cylinder (*d* being the diameter of the lumen and *l* the required length) what length of tubing of the particular standard bore would be occupied by a measured volume of mercury. The calculation made, we introduce our measured volume of mercury into the upper end of our tube, and having as in the procedure last described blown it down into the capillary stem, we now run it along the very gradually tapering capillary portion of the tube until we find that it occupies a length of tube corresponding to the calculated length. The details of the procedure may be postponed until we come to deal with the application of the method in connexion with the standardication of coagulation tubes. It may, however, be noted that the method of calibration here described aims at giving us, and in point of fact effectively gives us, the average diameter of the tube. Calibration by means of wire of standard size aims only at giving us the minimum diameter and in point of fact fails to give us that diameter correctly in the case where the progress of the wire in the tube is arrested by kinking.

Having thus briefly explained the principles by which we arrive at the measurements required in connexion with the quantitative estimations enumerated above we may pass to consider some new applications of these principles.

I.

ESTIMATION OF THE NUMBER OF RED AND WHITE CORPUSCLES IN A STANDARD VOLUME OF BLOOD.

Consideration will show that the essential features of the procedure which is universally adopted for the enumeration of the formed elements of the blood are (*a*) the making of a definite dilution of the blood, (*b*) the measuring off of a definite volume of this dilution, (*c*) the enumeration of the corpuscles contained in a series of measured volumes of this diluted blood, and (*d*) the multiplication of this number with a factor which expresses the dilution and the relation of the volume of diluted blood counted to the standard volume of blood.

The following points suggest themselves in connexion with this procedure.

1. It is unnecessary for the purpose of arriving at a definite dilution of blood to start with a definitely known volume of this last and to mix it with a definitely known volume of diluting fluid. It will satisfy all requirements if we start with an aliquot volume of blood and make our dilution by the methods suggested above. In other words, we can dispense with the standardised pipettes of the Gowers and Zeiss hæmocytometers.

2. It is inappropriate, since there is so great a difference between the numbers of the red and white corpuscles in the blood, to employ one and the same dilution for the enumeration of both these varieties of formed elements. The best dilutions to employ will be those which give us on the unit of area, in the case of the white blood corpuscles the maximum number which can be had without piling up the corpuscles one upon another, and in the case of the red blood corpuscles a number such as will be well within the limits of what we can conveniently enumerate. When employing a depth of 0·2 millimetre for our cell, as in the Gowers hæmocytometer, and when enumerating in conformity with the proposal made below over an area which has a diameter of 0·4 millimetre, a 50-fold dilution for the white blood corpuscles and a further 50-fold dilution of this, giving a final dilution of 1 in 2500, for the red corpuscles would be appropriate dilutions.

3. It is traditional to take as the unit of volume for enumeration purposes the contents of the cube or rectangular figure which is delimited by the height of the cell and the cross rulings on the floor of this last. Neither economy nor yet convenience has been studied in selecting this method of measuring off the unit of volume for enumeration. The unit

[9] THE LANCET, June 1st, 1901, p. 1532.

of volume which is thus measured is uneconomical because we are at the cost of the micrometrical rulings. It is inconvenient inasmuch as the counting operation involves a distinct strain on the attention when, as in the case of the Gowers hæmocytometer, we have an average of 50 red blood corpuscles crowded together within a very limited space. Convenience and economy alike—and the last comes into consideration in particular in connexion with the individual instruction of the members of a practical class—would be studied by taking as our unit of volume that volume of diluted blood which lies within the cylinder the dimensions of which are supplied by the depth of the cell and the diameter of the field of the optical combination by the help of which we make our enumeration. An optical combination which gives a diameter of 0·4 millimetre to the microscopic field supplies in combination with a 0·2 millimetre cell a convenient unit of volume. I pass to consider how effect can be given to the suggestions made above.

Preparation of the dilutions of the blood required for the enumeration of the white and red corpuscles.—The 50-fold dilution, which serves for the enumeration of the white blood corpuscles and as a stepping-stone to the achievement of the 2500 dilution appropriate for the enumeration of the red blood corpuscles can be obtained by any one of the following methods. (*a*) We may arrive at it by the method described under 1 in the introductory part of this paper by making in an uncalibrated tube first a 5-fold dilution of an aliquot volume of blood and then from this a further 10-fold dilution. (*b*) We may, employing the method described in 2 in the introductory part of this paper, first mark off on a capillary tube a series of 10 equal divisions, and afterwards make our 5- and 10-fold dilutions by the help of this pipette. (*c*) We may, combining the two methods of calibration which have just been referred to, and following the procedure described in a previous communication,[9] make for ourselves a diluting pipette, and by the help of this arrive at the dilution of 1 in 50 *uno saltu*. (*d*) Or, lastly, if we have actually at hand the standardised pipettes of the Gowers hæmocytometer we may after filling into a watch-glass 995 cubic millimetres of diluting fluid from the larger pipette, and after abstracting from this three five-cubic-millimetre volumes with the smaller pipette, arrive at our dilution of 1 in 50 by adding 20 cubic millimetres of blood to the 980 cubic millimetres of diluting fluid which remain.

Method of measuring off for enumeration a cylindrical volume of blood of known cubic content.—The diluted blood having been filled into the simplified form of cell which is obtained by omitting the micrometrical rulings, and the preparation having been placed under the microscope, the determination of the volume of blood in sight can be obtained by a simple measurement of the diameter of the microscopic field. The diameter of this field would, given the use of one and the same combination of lenses and length of tube, be a constant. That constant may be elicited once for all for each microscope by an observation with a stage micrometer. It would obviously be a matter of indifference what that constant happened to be except in so far as the facility of the subsequent computation would be affected thereby. In any case the cubic contents of the cylindrical volume of blood in view would be found from the formula which gives the cubic capacity of a cylinder. That formula[10] is—

$$\text{Cubic capacity of cylinder} = d^2 l \frac{\pi}{4}.$$

It manifestly will be convenient for the computation if we adjust matters so that the diameter of our microscopic field shall correspond to an integer, or—and this comes to the same thing—to a decimal which runs only to one decimal place, or to any simple vulgar fraction. We can, as a matter of fact, rapidly make such an adjustment by selecting an appropriate combination of lenses and by making use of our draw-tube. I find that a one-sixth inch objective employed with the ordinary low eye-piece and the short continental tube gives a microscopic field the diameter of which somewhat exceeds 0·4 millimetre. We can, at any rate, using this combination, readily adjust our draw-tube so as to obtain a field of exactly 0·4 millimetre diameter.

Method of computation.—Let us suppose that we have once for all recorded that a particular combination of lenses used with a particular length of tube gives a field of 0·4 millimetre. We know then, from the formula given above, that the volume of diluted blood in sight in the case of a cell having a depth of 0·2 millimetre will (0·4 millimetre being the diameter of the cylinder) correspond to $(0{\cdot}4 \times 0{\cdot}4 \times 0{\cdot}2 \times 0{\cdot}78 =)$ 0·02496 cubic millimetre. Writing this as $\frac{1}{40}$th cubic millimetre and multiplying by the dilution of $\frac{1}{50}$th or, as the case may be, $\frac{1}{2500}$th, we arrive at the result that the volume of the diluted blood in sight corresponds in the first case with $\frac{1}{2000}$th, and in the second case with $\frac{1}{100000}$th of a cubic millimetre of the undiluted blood. In accordance with this we find the number of white or red corpuscles in one cubic millimetre of blood by multiplying the average number of corpuscles enumerated in our unit of volume ($\frac{1}{40}$th cubic millimetre), in the former case by 2000 and in the latter case by the familiar factor 100,000. It will be seen that when the diameter of the field of the microscope has once been determined the only apparatus required for the enumeration of blood corpuscles is a plain cell of known depth.

II.

METHOD OF DETERMINING UNDER THE MICROSCOPE THE NUMBER OF MICRO-ORGANISMS CONTAINED IN A BACTERIAL CULTURE.

On pondering the problem of a possible enumeration of bacteria by the methods employed for the enumeration of the formed elements of the blood we are led to ask ourselves the preliminary question as to whether the numbers which we have to deal with in the case of a bacterial culture are numbers of the same or of a different order from those which we have to deal with in the case of the blood corpuscles. As a matter of fact they are numbers of the same order. We may compare, for instance, the figure of 5,000,000,000 which represents the number of red blood corpuscles in one cubic centimetre of blood with 1,000,000,000, which is about the average figure for the number of individual bacilli in one cubic centimetre of a well-grown 24-hours broth cultivation of the typhoid bacillus. There is thus, so far as the number of elements to be dealt with is concerned, no reason why the methods of hæmocytometry should not find an application in connexion with the enumeration of the bacteria in a culture. The real difficulty is to be found elsewhere. It is to be found in the circumstance that the device of the hæmocytometer cell—the device, that is to say, by which the even distribution of the formed elements of the blood is secured—is inapplicable in the case of the bacterial culture. It is there inapplicable, on the one hand, because we cannot secure the settlement of bacteria even when they are non-motile, and, on the other hand, because it would be impossible satisfactorily to draw off the supernatant fluid from a cell and to stain the bacterial deposit.

After failing in attempts undertaken with a variety of methods to secure an even distribution of the bacteria over a measured area of surface I addressed myself to the task of circumventing this difficulty. The following line of thought suggested to me a possible method of dispensing with the necessity of an even distribution of the bacteria over a measured superficial area. Given that a flock of sheep is to be counted, and that the members of that flock of sheep when turned out to pasture on a field of known area refuse to distribute themselves evenly over the pasturage, it becomes impracticable to arrive at the number of the flock by the method of counting heads on a series of small measured areas and multiplying the average number of sheep thus found by a factor corresponding to the fraction which the unit of area bears to the whole area of the field. In such a case it would be possible to introduce among and mix up thoroughly with the sheep before they were turned out a flock of goats containing a known number of individuals. This done, it would be practicable to arrive at the number of the sheep from a consideration of the relative number of goats and sheep enumerated on a series of small measured areas. It would be practicable—that is to say, as long as no force came into operation to draw together into groups the similar elements in the mixed flock.

Applying this suggestion to the case of the formed elements in the bacterial culture and recognising in the normal blood with its practically constant number of formed elements a suitable and readily accessible standard of comparison, it suggested itself as probable that the bacteria in a culture could be enumerated by mixing (by the method

[9] THE LANCET, June 1st, 1901, p. 1532.

[10] For explanation of *d* and *l* in the formula vide under 3 in introductory part of this paper.

TABLE I.—SHOWING THE RESULTS OF BACTERIAL ENUMERATIONS UNDERTAKEN BY THE METHOD DESCRIBED IN II.

Serial number.	Variety of culture employed.	Number of volumes of culture which were added to one volume of blood.	Number of red blood corpuscles enumerated.	Number of individual bacteria enumerated on the same area.	Number of bacteria in 1 c.mm. of culture as deduced from relative numbers of red blood corpuscles and bacteria.
1	Staphylococcus albus, 24-hours-old agar culture suspended in 0·75 per cent. NaCl solution.	1 volume 1 volume	446 562	432 561	4,860,000 5,000,000
2	Staphylococcus albus, 24-hours-old agar culture treated as in 1. A $\frac{1}{10}$th dilution of the same.	1 volume. 1 volume.	216 219	364 237	8,450,000 5,400,000
3	Staphylococcus albus, 24-hours-old agar culture treated as in 1. A $\frac{1}{10}$th dilution of the same.	1 volume. 1 volume.	214 275	299 282	7,000,000 5,100,000
4	Staphylococcus albus, 24-hours-old agar culture treated as in 1.	1 volume. 1 volume.	566 159	570 142	5,000,000 4,450,000
5	Staphylococcus albus, 24-hours-old agar culture treated as in 1.	1 volume. 1 volume. 1 volume.	Not recorded. " " " "	Not recorded. " " " "	1,700,000 1,900,000 1,820,000
6	Typhoid bacillus, 24-hours-old broth culture.	1 volume. 1 volume.	434 261	124 55	1,425,000 1,050,000
7	Typhoid bacillus, 24-hours-old broth culture	4 volumes. 4 volumes	500 485	68÷4=17 56÷4=14	170,000 145,000
8	Typhoid bacillus, 24-hours-old broth culture.	4 volumes. 4 volumes.	602 409	149 ÷ 4 = 37·2 89 ÷ 4 = 22·2	310,000 270,000
9	Typhoid bacillus, 24-hours-old broth culture.	1 volume. 1 volume.	Not recorded. " "	Not recorded. " "	280,000 240,000
10	Coli bacillus, 24-hours-old agar culture treated as in 1.	1 volume. 1 volume.	265 201	210 156	3,950,000 3,850,000
11	Anthrax bacillus, 24-hours-old agar culture treated as in 1.	4 volumes 4 volumes.	406 504	31 ÷ 4 = 7·7 36 ÷ 4 = 9·0	95,000 90,500
12	Anthrax bacillus, 24-hours-old agar culture treated as in 1.	4 volumes. 4 volumes.	489 458	54 ÷ 4 = 13·5 56 ÷ 4 = 14	138,000 142,500
13	Anthrax bacillus, 48-hours-old agar culture treated as in 1.	1 volume. 1 volume.	461 358	155 124	1,680,000 1,730,000
14	Anthrax bacillus, 24-hours-old agar culture treated as in 1.	Not recorded. " " " "	Not recorded. " " " "	Not recorded. " " " "	560,000 470,000 500,000

Note.—Each line in the table corresponds to a separate enumeration procedure. In the case of the separate observations tabulated above under the serial numbers 1, 4, 6, 9, 10, 11, 12, and 13 the enumeration procedures were undertaken in each case by two separate observers. The observations tabulated under 14 were made by three separate observers.

TABLE II.—SHOWING, FOR THE PURPOSE OF COMPARISON, THE RESULTS OF BACTERIAL ENUMERATIONS MADE (*a*) BY THE CULTURAL METHOD DESCRIBED IN A PREVIOUS COMMUNICATION AND (*b*) BY THE METHOD DESCRIBED IN II.

Variety of culture.	Data with regard to microscopic count.		Number of undegenerated* bacteria in 1 c.mm. of culture as deduced from the foregoing data.	Data with regard to the number of colonies which developed on agar tubes inoculated in each case with 10 c.mm. of diluted cultures.							Number of living bacteria or bacterial groups in 1 c.mm. of culture as deduced from the foregoing data.
				10,000 dilution.		100,000 dilution.		1,000,000 dilution.			
	Number of red blood corpuscles enumerated.	Number of individual bacteria on the same area.		A	B	A	B	A	B	C	
Staphylococcus albus, four-days-old agar culture suspended in 0·75 NaCl solution.	313	175	2,700,000	—	—	—	—	11	16	15	1,400,000
Typhoid bacillus, 24-hours-old broth culture.	391	111	1,420,000	—	—	—	—	2	4	2	266,000
Anthrax bacillus, 24-hours-old agar culture suspended in 0·75 NaCl solution.	489 459	$\frac{1}{10}$=13·5 $\frac{1}{10}$=14	138,000 142,000	10	3	2	1	—	—	—	Circ. 13,000

* Under the heading of "undegenerated" were classed all those micro-organisms which took the stain in a satisfactory manner.

described under 1 in the introductory part of this paper) an aliquot volume of bacterial culture with an equal volume of blood, making a film preparation of this mixture, and counting under the microscope the number of bacteria and red corpuscles found on a series of microscopic fields. The examples embodied in Table I. will show that the method is capable of giving very satisfactory results.

Before describing the details of the procedure by which the above results were obtained it will be well to bring out the following points.

1. The microscopic method which is here in question enables us to arrive at the number of individual elements in a bacterial culture. Cultural methods give us often only the number of separate bacterial groups or bacterial hyphæ. The microscopic method is thus applicable to the enumeration of cultures of anthrax and of those varieties of staphylococcus which, since they cannot be effectively isolated, cannot be effectively enumerated by the cultural method.

2. The microscopic method enables us to determine the total number of bacteria contained in a culture. The cultural method manifestly tells up at best the number of living bacteria or bacterial groups and hyphæ contained in the culture. I have shown in a previous communication that the dead bacteria in a culture of typhoid or cholera cannot be left out of account when we employ the culture as a measure of the bactericidal power of the blood. Much less can they be left out of account in the standardisation of a bacterial vaccine.

3. The microscopic method gives us immediately, and, if we so desire it, anteriorly to the employment of the culture, the number of contained bacteria. Given that we have elicited this information and that we desire to modify our culture in the direction of diminishing its content in bacteria, we can, as is shown in the case of the observations designated respectively by the serial numbers 2 and 3 in Table I., dilute our cultures to the degree necessary to obtain a standard number of bacteria in the cubic millimetre. Such a preliminary standardisation of the bacterial culture employed may usefully be resorted to in the case of every estimation of the phagocytic power of the blood. As a matter of fact it was for this object that the dilutions in the tabulated observations just referred to were undertaken. A standard of 5,000,000 staphylococci per cubic millimetre was here aimed at and approximated to.

A study of Table II. will throw interesting light on some of the questions touched upon, and also upon the question of the relative margin of error of the two different methods of bacterial enumeration.

Details of the procedure employed for the enumeration under the microscope of the number of micro-organisms in a bacterial culture.—The mixture of the blood and culture in definite proportions is achieved by employing the procedure described under 1 in the introductory portion of this paper. Into the uncalibrated capillary tube are filled in in each case five volumes of fluid. Of these one is in all cases a volume of blood. The other four volumes are made up, according to the estimate which we form of the probable number of bacteria in the culture or bacterial suspension which we are dealing with, of either one volume of culture and three of diluting fluid, or of two volumes of culture and two of diluting fluid, or of three volumes of culture and one of diluting fluid, or of four volumes of culture.[11] After thorough mixture has been effected in the neck of the tube a drop of the contents is blown out upon a slide.[12] This drop is spread out by bringing down upon it the edge of another slide and drawing this along. The thickness of the film is regulated by adjusting the angle between the slides, widening this angle when a thicker film is to be left behind, and narrowing it when a thinner film is required. The film is then fixed and stained, most conveniently, perhaps, by the stain described by my colleague, Major W. B. Leishman, R.A.M.C. The bacteria and red blood corpuscles are now separately enumerated on a series of fields chosen at random from different parts of the preparation. Owing to the spacing out which is secured by the 5-fold dilution of the blood this enumeration can, if necessary, be carried out without restricting or subdividing the field of the microscope. It, however, facilitates matters if we restrict the field by the employment of a high-power eye-piece and subdivide it by inscribing a cross by means of a glass writing pencil upon a cover-glass and dropping this into the eye-piece. The necessary calculations can be most easily carried out by the help of a slide rule.

Finally, before taking leave of the method, we may note that in the case of a mixture of an agglutinating blood with a culture of the typhoid bacillus we have to deal with the conditions which were in contemplation when it was pointed out above that the method of enumeration which we are here dealing with could not be relied upon to give satisfactory results where forces were allowed to come into operation which tended to draw together the similar elements of the mixture into separate groups.

[11] Examples of the employment of the first and last of the mixtures here in question will be found tabulated in Table I.

[12] The slide may with advantage have been cleaned and warmed immediately before use by pouring alcohol upon it and burning this off.

III.

On a Simple Procedure for Making for Oneself Coagulation Tubes of Standard Calibre, and in Connexion with this a Note on the Practical Importance of the Information Obtained from the Coagulometer.

I have in a series of papers[13] urged the importance of measuring the coagulability of the blood in connexion with clinical work. I have pointed out (1) that excessive hæmorrhage supervening upon a solution of continuity of the vascular wall produced by traumatism or pathological processes is indicative of a defect in coagulability; (2) that excessive transudation of lymph (I have ventured to denote this by the term "serous hæmorrhage") is also intimately associated with a defect of blood-coagulability; (3) that a deposition of fibrin upon the wall of an aneurysm can be expected only when a patient's blood possesses a high degree of coagulability; and (4) that intravascular thrombosis is indicative of an unduly high blood-coagulability. The evidence upon which the last of these generalisations is based is derived from experiments on animals. The third generalisation is established by considerations of the *a priori* order.

The evidence for the first two generalisations may appropriately be epitomised here.

It consists in part of the data of coagulo-metrical observations made upon bleeder patients. My observations conducted upon a large number of bleeders of nine different bleeder-stocks have uniformly shown that the blood of these patients is characterised by a notable defect of coagulability. Proportionate to this defect is the severity of the symptoms, in particular the duration of the traumatic hæmorrhages and the frequency and persistence of the subcutaneous serous hæmatomata and of the joint effusions.

A further basis for the generalisations which are here in question is supplied by observations conducted upon a variety of patients having in common only the fact that they were suffering from localised or general serous hæmorrhage. The coagulometrical observations which I have been able to make—in particular in connexion with urticaria, chilblains, and general anasarca—would seem to suggest that these pathological phenomena stand in close association with a defect of blood-coagulability.

I have urged that the recognition of the pathological generalisations set forth above is of fundamental importance in connexion with therapeutics. For as soon as we have ascertained that a particular set of clinical symptoms is associated with a diminished or, as the case may be, an increased blood-coagulability we may appropriately apply any therapeutic agent which shall have been found to increase or, as the case may be, to diminish the coagulability of the blood.

I may perhaps claim to have made a contribution to the building up of a scientific system of therapeutics of the disorders of the blood (*a*) by devising a coagulometer; (*b*) by establishing by coagulometrical observations that the blood may often be rendered more coagulable by the ingestion of calcium salts and in particular of calcium chloride; (*c*) by showing that there is a certain determinable optimum addition of calcium salts which cannot with advantage be exceeded; (*d*) by showing that an increase of coagulability may be

[13] On the Effect of the Administration of Calcium Salts in Hæmophilic and Arterial and Thickened Hæmorrhage, Brit. Med. Jour., July 29th, 1893. Remarks on Methods of Increasing and Diminishing the Coagulability of the Blood, with special reference to their Therapeutic Employment, ibid., July 14th, 1894. On the Treatment of the Hæmorrhages and Urticarias which are associated with Deficient Blood-coagulability, THE LANCET, Jan. 18th, 1896, p. 153. Note on Two Cases of Urticaria Treated with Calcium Chloride, British Journal of Dermatology, vol. viii., No. 89. On the Association of Serous Hæmorrhages with Conditions of Defective Blood-coagulability, THE LANCET, Sept. 19th, 1896, p. 807. On the Pathology and Treatment of Chilblains, THE LANCET, Jan. 30th, 1897, p. 303. Discussion on the Blood in Disease, Transactions of the Pathological Society of London, 1900.

expected from the ingestion of calcium salts in particular where we have to deal with a defect of coagulability dependent upon a diminution of the content of the blood in lime salts; (*e*) by suggesting a method of estimating the lime salts of the blood by which the existence of this defect may be determined; (*f*) by demonstrating that internal hæmorrhage and hæmorrhage from operation wounds may be checked or kept under control by the exhibition of calcium chloride; (*g*) by demonstrating that calcium chloride will often control or abolish chilblains and urticaria (in particular the form of urticaria which supervenes upon the administration of diphtheria antitoxin and upon the consumption of acid fruits and vegetables); (*h*) by showing that the ingestion of blood-decalcifying agents, such as citric acid and the administration of soap, is followed by a diminution of blood coagulability and correspondingly increased lymph effusion; and (*i*) by bringing out more clearly the fact already demonstrated by Vierordt that the ingestion of alcohol is followed by a diminution of blood-coagulability.

Of the therapeutical suggestions made in connexion with this work the only one which has so far been generally adopted in practice is, I apprehend, the suggestion that calcium chloride may upon occasion render useful services in connexion with the arrest of internal hæmorrhage and hæmorrhage from operation wounds. The general principle which underlies the suggestions, and which is of infinitely greater moment than any of these, has been quite overlooked. This being so I may perhaps be allowed to urge that there are many indications dispersed through current medical literature which point to the need for a general advance towards that wider view of the pathology and that more rational treatment of disorders of the blood which I venture to claim is embodied in the work epitomised above. I may perhaps in illustration refer to the following points.

1. The literature dealing with the treatment of aneurysm by means of gelatin injections—so much of it at any rate as is known to me—contains no reference to the practicability and expediency of determining by measurements of the coagulability of the blood before and after such injections whether the object in view, which is presumably the increase of the coagulability of the blood, is or is not advanced by this method of treatment. More than this, when recently upon the occurrence of three accidental deaths in patients under treatment by this method the suggestion was thrown out that death may have resulted from intravascular thrombosis, it apparently did not suggest itself that accidents due to this cause must *a priori* be expected in connexion with any treatment which increases the coagulability of the blood. Nor apparently did it suggest itself that it would be possible to take precautions against such accidents by measuring the coagulability of the patient's blood and by taking steps to diminish that coagulability as soon as evidence was obtained of impending danger.

2. In the incidental references which have from time to time been made in the medical press to the prophylactic administration of calcium chloride to patients on the eve of operation, and in the reports of a recent discussion in the course of which the efficacy of this treatment in the case of jaundiced persons was debated, it appears to have been overlooked that it would be both practicable and appropriate before proceeding to operate in a case where hæmorrhage was feared to determine whether the patient's blood has acquired the particular degree of coagulability which is desired.

3. Severe intestinal hæmorrhage supervening in the course of typhoid fever is still referred to in medical literature as if it were an unforeseeable and altogether legitimate sequela of the ulcerative processes in progress in the intestine. In point of fact—and the same applies in connexion with many cases of hæmoptysis—the hæmorrhage is inordinate in quantity and is associated with a serious defect of blood-coagulability. Moreover, it is possible to seek warning with a view to providing against the danger. The mere fact of blood flowing profusely from a prick in the finger would of itself convey the necessary warning.

4. Again, the thrombosis which is so frequent a complication of convalescence from typhoid fever and from the puerperal condition figures in medical literature as an undesirable but unavoidable complication, the supervention of which must be expected in the proper proportion of cases. A wider outlook would, on the contrary, suggest that intravascular coagulation can hardly occur, and can certainly not progress, in association with a low blood-coagulability. And it would further suggest that steps might be taken in typhoid fever after the period of danger from hæmorrhage had passed off to reduce the coagulability of the patient's blood. In connexion with this I may incidentally refer to the fact that Lieutenant E. Blake Knox, R.A.M.C., the medical officer in charge of the acute typhoid fever wards in the Royal Victoria Hospital, Netley, has recently given effect to this suggestion by putting every convalescent typhoid fever patient on a regimen of two lemons a day. He informs me that, in striking contrast to what was previously the case, only one case of thrombosis, and this a case of the mildest description, has developed among some 90 successive typhoid fever patients treated by the blood-decalcifying agent.[14]

5. Lastly, I may refer to the fact that urticarias supervening upon the administration of soap enemas, and urticarias supervening upon the ingestion of acid fruits and vegetables (rhubarb) are still chronicled in the medical press as events which refuse to fall into line with any known facts. I have not only, as already mentioned, shown that decalcifying agents as a class when introduced into the system induce a diminution of blood coagulability, but I have, on the one hand, in myself achieved a diminution of blood-coagulability and an urticaria by the ingestion of citric acid, and, on the other hand, in the dog achieved a decalcification of the blood and a diminution of blood-coagulability by the administration of soap.

In view of the possibility of an advance in pathology and therapeutics being made along the lines opened up by the coagulometrical observations which have here been in question it will be recognised that everything that conduces to the simplification and cheapening of the coagulometer, and in short to its popularisation, becomes a matter of moment. The way to the cheapening of the coagulometer lies in narrowing down the apparatus to the bare coagulation tubes, and in substituting for the thick-walled coagulometer tubes calibrated by the professional glass-blower and scientific instrument maker, thin-walled capillary tubes made by heating and drawing out ordinary glass tubing and calibrated in accordance with the principle laid down in section 3 of the introductory part of this paper.

Details with regard to the method of calibration.—A preliminary word or two is required on the question of the standard calibre. A standard calibre of 0·25 millimetre was originally chosen by me for the coagulation tube. It turns out, however, from a series of measurements made by filling in with mercury a variety of coagulation tubes obtained from various sources, that the suggested calibre has at best been so far conformed to as to make 0·25 millimetre the minimum calibre of the tube. I have, therefore, in connexion with an abandonment of the ordinary calibration by means of standard wires in favour of a calibration with a measured volume of mercury, had to reconsider the question of the standard. I find that a convenient approximation to the wire standard of 0·25 millimetre diameter is obtained by taking as the standard for the mercury calibration a tube of a calibre such that five cubic millimetres of mercury will occupy in it a length of five centimetres.

We undertake the calibration as follows. Having taken a piece of ordinary glass tubing, having drawn it out into a fine and insensibly tapering capillary stem, and having sealed off this last in the flame, we introduce into the wide end of the tube five cubic millimetres of mercury measured off[15] by means of a standard five-cubic-millimetre pipette such as is supplied with the Gowers hæmocytometer. We now as a preliminary to driving down our globule of mercury into the capillary stem break off the end of this last between finger and thumb. Or better, since this avoids all chance of our mercury escaping from us through the far end of our tube, we draw out our capillary stem in the flame of a peep light into an absolutely hair-fine tube and then break this across. We now drive down our mercury into the capillary stem and find out by tilting the tube in such a manner as to move the mercury along whether there is any portion of the tube where the mercury column

[14] A blood-decalcifying treatment is here eminently in place, inasmuch as the ordinary typhoid fever patient will have been fed for a period of weeks upon a foodstuff (cow's milk) which contains a larger percentage of lime salts than any other. I have already pointed out in THE LANCET of July 22nd, 1893, that the milk might with advantage, with a view to the prevention of firm clotting in the stomach, and with a view to the prevention of constipation, be partially decalcified by an addition of 0·5 per cent. of citrate of soda.

[15] It will be found convenient to employ a (tightly fitting) rubber teat for the purpose of drawing up the mercury into the standard pipette and for driving out this measured volume into the wide end of the tube which we propose to calibrate.

occupies a length of five centimetres. We determine this by bringing our tube down upon a piece of white paper upon which we have marked off a length of five centimetres. If we cannot find upon our tube a length which conforms to conditions of our standard we discard the tube. If, on the contrary, we find a length of tube which answers our requirements we mark off the upper and lower limits of this with a glass writing pencil. We now, for a purpose which will presently appear, displace our column of mercury in the direction of the orifice of the capillary stem for a distance of from one to two centimetres. We again mark off the points indicated by the upper and lower limit of the mercury, and, finally, we break off our tube at the point last mentioned. Before actually doing this we free the orifice of our pipette by breaking off its fine-drawn extremity, and transfer the mercury to the next tube awaiting a calibration. After calibrating a series of from six to eight tubes, we number these, inscribing the serial numbers with a glass writing pencil upon the wide upper extremities of the tubes.

Method of employing the tubes.—We draw blood from the finger near the nail either by means of a prick with a hypodermic needle or by a series of pricks made with a sharp spicule of glass obtained by drawing out a piece of capillary tube. It is to be observed that the prick or pricks that we make must be generous enough to give us all the blood we require with an absolute minimum of adventitious aid. If such aid is required we obtain it by winding a handerchief round the finger and making gentle pressure upon the finger pulp. The pressure must be gentle so as to avoid obtaining a mixture of lymph and blood which would coagulate more rapidly than the unmixed blood from the capillaries. As soon as a drop of blood has issued from the wound a coagulation tube which has been broken off, as indicated above, at the lowest pencil-mark is applied to the blood. This last is allowed to flow in by capillary attraction until it reaches the penultimate mark—i.e., the mark which indicates that five cubic millimetres of blood have been filled in. The orifice of the tube is now withdrawn from the blood and the tube is tilted in such a manner as to bring the column of blood into position between the two marks which delimit the portion of the tube which conforms to the standard calibre. The time of filling in each tube is noted down, both minutes and seconds. The blood is now kept at the temperature of the air, if this temperature conforms approximately to the standard temperature of half blood heat (18·5° C., 65-66° F.). In the case where the temperature of the air is sensibly warmer or cooler than the standard temperature the tube is placed upright[16] in a vessel of water of the appropriate temperature. After the usual interval (about three minutes in the case where the blood-flow from the finger-prick is normal, about five minutes where that flow is somewhat more free) the testing of the first tube is undertaken by blowing down the expanded upper end, the orifice being meanwhile held over a piece of white filter paper in order to detect the first shreds of fibrin. The coagulation time—i.e., the minimum time occupied by the blood in forming a definite coagulum—will normally approximate to five minutes.

Netley.

CASES OF GASTROTOMY FOR RECENT GASTRIC ULCER.

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IN two of these cases the immediate cause for operation was recurrent hæmatemesis.

CASE 1.—The patient, a woman, 26 years of age, who was admitted into the London Hospital on May 14th, 1900, had suffered severely from attacks of indigestion for the previous 18 months. Of late the pain had been intense, coming on immediately after meals, or within half an hour, and radiating through from the epigastrium to the back. Until the week before admission actual vomiting had only been of occasional occurrence. Since then it had been almost constant. There had been a slight attack of hæmatemesis four months previously, and other attacks, becoming more severe, seven days, five days (twice), and four days (twice) previously, and on the morning of admission. On the last occasion the quantity was said to have amounted to more than a pint. Shortly after admission she vomited six ounces of almost pure blood. There was no history of melæna, but an enema given the day before she came to the hospital brought away a considerable quantity of blackened blood. The pulse was 140 to the minute, very small in volume and of low tension, and the patient was decidedly blanched. My colleague, Dr. F. J. Smith, under whose care the patient had been admitted, thinking that it was not advisable that she should be allowed the chance of losing any more blood, very kindly had the case transferred to my wards, and an operation was performed as soon as it could be arranged. The abdomen was opened in the middle line, and the serous coat of the stomach was carefully examined. As there was no scarring or other sign of inflammation the stomach itself was packed round with sponges and was opened by a vertical incision midway between the pylorus and the cardiac end. The angles of the incision were held open by pressure-forceps and the mucous surface was systematically everted and examined bit by bit, that covering the posterior wall being brought into view by introducing the hand through an opening in the great omentum and lifting the wall of the stomach into the wound. A large vaginal speculum introduced through the opening in the anterior wall enabled the cardiac orifice and that part of the mucous surface which could not be brought up to be inspected without difficulty. A small ulcer was found on the anterior surface near the greater curvature. It corresponded fairly well with the ordinary description of a simple ulcer and had evidently been bleeding recently. There was no induration about its edges and no vessel was visible on its floor. An incision was carried round the ulcer and the whole of it was excised down to the muscular coat, the gap that was left being closed by fine silk sutures which served at the same time to stop the bleeding. The wound in the stomach was closed by a double set of sutures, and the opening in the abdominal wall was secured with silkworm gut. Convalescence was uninterrupted except for a slight attack of parotitis on the second and fourth days. The patient vomited once after the anæsthetic. Small quantities of hot water were given by the mouth the same evening and continued at frequent intervals for the relief of thirst, but for the first four days the feeding was carried out entirely by means of nutrient enemata. Solid food (fish) was given 10 days after the operation and a few days later the patient was placed on ordinary diet. She soon regained her strength and since the operation she has been perfectly free from the pain and indigestion which troubled her so much before.

CASE 2.—A married woman, 28 years of age, was admitted into hospital on April 25th, 1900, for hæmatemesis. She was sent up in an ambulance with a history of having vomited blood at frequent intervals for four days. Shortly after admission she was sick, bringing up 15 ounces of dark-coloured blood and she became very much collapsed. An operation similar to that already described was performed as soon as could be arranged. When the stomach was exposed an old cicatrix was seen near the cardiac end. This was excised and then a recent but chronic ulcer with indurated edges was found by its side. In the floor of this ulcer was a bleeding branch of the gastro-epiploic artery. The ulcer was included in the incision and the opening in the stomach-wall, which was nearly three inches long and ran almost up to the cardiac orifice, was secured by a double set of sutures. The patient was very much collapsed but she rallied under injections of strychnia and caffein and rectal enemata. For the first three days vomiting was very troublesome. Then it ceased and she appeared to rally. She was able to take small quantities of jelly by the mouth. The bowels acted at first after enemata and then spontaneously. The tongue became moist. The abdomen was soft, not distended, and moved well with respiration. But, as in the former case, parotitis set in, first upon one side and then upon the other. Suppuration followed and though relief was obtained when the abscess was opened the patient died on the ninth day after operation.

At the post-mortem examination the opening in the stomach was found to be merely held together by the sutures. The edges were sloughing and there was an entire absence of repair. The kidneys were markedly granular and contracted. It is worthy of remark that parotitis occurred in both these

[16] It will be found that it is unnecessary to seal up the orifice of the tube, the intervening column of air which is provided by the projecting portion of the tube suffices to keep the blood and water apart.

cases though there was suppuration in only one. As there had not been any case of post-operative parotitis in my wards for at least five years before and there has been none since it almost seems as if there must have been some connexion between them; but the patients were not on the same floor or in the same ward and the one died 10 days before the other was operated upon, so that in all probability it was merely a coincidence, but it was a curious one.

CASE 3.—In this case, that of a patient who was under the care of Dr. H. J. Capon, the immediate cause was uncontrollable pain and vomiting. The patient was a married woman, 32 years of age. For some months she had suffered in a very severe degree from all the symptoms of gastric ulcer with the exception of hæmatemesis and melæna. These had never occurred. All the ordinary remedies, including prolonged rectal feeding, had been exhausted without obtaining the least permanent benefit. The patient had lost more than a third of her weight and was so weak that she could scarcely raise herself from her bed. The pain came on within a few minutes after swallowing food and was especially severe at the ensiform cartilage. The skin over this region was exceedingly sensitive. Vomiting shortly after food was the rule. This relieved the worst of the pain but it usually continued with more or less severity for some hours after anything had been taken. After consultation with Dr. T. J. Maclagan it was decided to explore the stomach and on opening it a long, narrow ulcer with slightly thickened edges was found lying at the bottom of one of the rugæ on the anterior surface close by the incision. It was about three-quarters of an inch in length and extended down to, but not into, the muscular coat. No other lesion of any kind could be found though the whole of the interior was carefully explored in the way already described. The ulcer was excised, the mucous and submucous layers were sutured together and the stomach and abdomen were closed in the usual way. In this case, also, vomiting continued for some considerable time. The pain disappeared completely and finally, but owing to the sickness it was some time before the patient could take sufficient food to enable her to regain her strength. Recovery finally was complete.

I may mention that in addition to these cases I published in THE LANCET in 1900[1] a series of three others in which I had operated for hæmatemesis, all of which terminated successfully, the patients recovering completely without any drawback. Of five cases, therefore, in which I have operated directly for hæmatemesis four patients have been cured, and I have little doubt myself that the fifth patient would also have survived had not her condition been so desperate.

It is usually held that the advisability of operating in these cases can be settled at once by comparing the actual mortality of hæmatemesis in cases of gastric ulcer with that which it is supposed might follow gastrotomy performed under these conditions. The former is put down at from 3 to 5 per cent; the latter is estimated very variously, according to the kind and severity of the cases selected. No such comparison, however, is possible under the present conditions. On the one hand, the whole number of cases of hæmatemesis, trivial and severe alike (and the trivial ones are much the more numerous), is taken and the mortality percentage is calculated from that. On the other hand, only those cases which are absolutely desperate, in which the operation is performed as a last chance after everything else has been tried and has failed, are reckoned at all. No one suggests, or has ever suggested, operating upon slight cases of hæmatemesis. They should be placed entirely on one side and not be taken into calculation. The only comparison that can be made with any pretence at fairness is between those cases in which surgical measures are advised and declined and those in which they are advised and accepted. I have no doubt as to the result. In three of my five cases the patients were already so bloodless that transfusion had to be performed. In two others I had to decline to operate altogether; they were beyond even transfusion. The mortality of such cases, left to themselves without operation, is certainly not 3 per cent., or even 5 per cent.; it is much nearer 100 per cent. And they are the cases with which the only comparison can be made when the result of operation is the subject in question.

As no paper of this kind appears to be complete without statistics, and as the statistics of the mortality from gastric ulcer, and especially from hæmatemesis, vary a good deal according to the authority from whom they are taken, I asked the medical registrar at the London Hospital, Dr. R. C. B. Wall, kindly to tabulate for me all the cases of hæmatemesis from gastric ulcer which had been admitted into the London Hospital in the five years from 1895 to 1899 inclusive. All cases of hæmatemesis from cirrhosis, malignant disease, &c., were carefully excluded. The result is of decided interest. The total number was 246, 202 women and 44 men, and taking one year with another the numbers were very much the same in each. The total number of deaths from hæmatemesis was 10, or 4 per cent. But the incidence of the deaths according to age was very singular. Under the age of 30 years there were 153 women with only one death. Over that age there were 49 women with three deaths, or 6 per cent. Taking the men there were only five under 30 years of age with one death, and 39 over 30 years with five deaths. In other words, the mortality from hæmatemesis among the men over 30 years of age is 12¼ per cent., and taking all the men together regardless of age nearly 14 per cent. So far, then, as the question of operation for hæmatemesis is concerned there must, it appears to me, be one rule for women under 30 years of age and another for women over 30 years, and especially for men. But in considering the advisability of operating in general cases of gastric ulcer there is another point that must not be forgotten. These figures are only concerned with the mortality caused by hæmatemesis. There are other causes of death in gastric ulcer besides this, and these causes must also be taken into consideration. When the percentage of deaths due to these is added to that due to hæmatemesis it must be acknowledged that the death-rate due to gastric ulcer, especially in the case of men or of women over 30 years of age, is much higher than is usually believed.

I am fully aware that the treatment of gastric ulcer is, and must remain, in the hands of physicians. But it is becoming more and more evident every day that there are certain contingencies or accidents which may occur in the course of a case of gastric ulcer which, if the consequences are to be avoided, can only be met by the adoption of prompt and decisive surgical measures. This is admitted so far as perforation is concerned, but I maintain that the principle should be carried much farther. It should include all those cases in which, in spite of rectal feeding and other remedies, the pain after food is taken continues with severity, as it did in Case 3; in which vomiting after food obstinately persists; in which the patient is steadily losing ground; and in which medical treatment has been tried thoroughly for a sufficient length of time, say for some months, and has failed.

So far as hæmatemesis is concerned it is clear that age and sex make a very material difference. A much greater risk may be run in the case of a woman under 30 years of age than in the case of those over 30 years, and especially in the case of men. My own figures stand at only one death in 153 cases of hæmatemesis due to supposed gastric ulcer occurring in women under 30 years of age. (I may say that I have reason to believe that that particular period of five years was an exceptionally lucky one.) Surgical treatment can rarely be required in them. But if there is one single severe hæmorrhage in a case in which the previous history suggests the presence of a chronic gastric ulcer (when the bleeding is probably due to an opening in an artery of some size and is not merely capillary); if in any case there are two separate attacks of severe hæmatemesis at a short interval; or if there are frequent small hæmorrhages, so that the patient is becoming seriously anæmic, I believe that the risk of operation is very decidedly less than is the risk of leaving the patient alone, and that the best interests of the patient would be consulted by giving him or her the chance of operation before the condition becomes desperate.

Wimpole-street, W.

[1] THE LANCET, Oct. 20th, 1900, p. 1125.

A FEW OBSERVATIONS ON THE BLOOD PRESSURE IN MENTAL DISEASE,

WITH A NOTE ON THE TREATMENT OF MELANCHOLIA.

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THE sphygmometer of Hill and Barnard was used in the following observations and in order to ensure accuracy a duplicate of the instrument was utilised. The readings were taken morning and evening at a fixed hour and the usual

precautions were observed to obviate any inaccurate result which might arise from the presence of morbid physical conditions liable to produce an abnormal blood pressure. The normal blood pressure was regarded as ranging from 110 to 120 millimetres of mercury.

Melancholia.—This affection was regarded as being divisible into four varieties—simple melancholia, acute passive melancholia, acute demonstrative melancholia, and chronic melancholia. There was no marked elevation of the blood pressure in the *simple* form of this malady, whereas in the *acute passive* type the blood pressure was invariably high and remained so until the acute physical and mental symptoms abated; a re-elevation occurred with each relapse of the disease. The average maximum pulsation was 155 millimetres of mercury.

It is probable that the high blood pressure and high tension pulse of this affection are due to the retention in the system of certain waste products of tissue metabolism as evidenced by the marked diminution in the excretion of urea and the atonic condition of the alimentary tract. The subjective physical sensations of the melancholic are probably also due to the same cause.

Dr. L. C. Bruce[1] and myself have already drawn attention to the marked beneficial effect of fluid diet in conjunction with the "bed treatment" in shortening the acute stage of this affection and a shortened acute stage generally ensures a more rapid convalescence.

Since recording these results I have treated 10 more cases of this passive acute melancholia with satisfactory results. No patient undergoing this treatment should leave bed or return to ordinary diet until his blood pressure has remained normal for at least a week or 10 days. I venture to assert that it only requires the further experience and observations of others to prove that the *suralimenl* method of treating acute passive melancholia is unphysiological.

Maudsley[2] has said regarding the use of drugs in insanity that "the purely medical treatment of insanity which is not maltreatment might be comprised within a narrow compass," and of all types of mental disease his observation is most applicable to the treatment of the above form of melancholia. Plenty of water, three or four pints of milk daily, the exhibition of an alkaline diuretic which does not disturb digestion—such as citrate of potassium—judicious attention to the bowels, and confinement to bed are all that are required in most cases. General tonics are of little value in the acute stage of the disease. Intestinal disinfectants, such as salol, have been advocated; but in the acute stage it is probable that they tend injuriously to retard the process of assimilation.

Paraldehyde appears to be the best drug we have at present for the insomnia of this type of melancholia and next to it comes trional. A great objection to sulphonal is that it tends to increase the already existing constipation and thus indirectly to sustain the blood pressure. It is a common experience to see a melancholic, to whom sulphonal has been administered as a hypnotic, improve at once on the withdrawal of the drug and the administration of calomel and salines.

Acute demonstrative melancholia (agitated or excited melancholia) differs from the foregoing passive type physically as well as mentally. Here we have no great diminution in the amount of urine excreted, an excretion of urea little below normal, a less elevated blood pressure, and, in the majority of cases, a leucocytosis. Bodily weight is also lost more rapidly. It is thus, from a physical point of view, more akin to mania.

The blood pressure was taken daily in 14 patients suffering from this variety of melancholia. It followed a more irregular course than that observed in passive melancholia, did not reach such a height, and its descent was not in all cases accompanied by a marked amelioration of the mental symptoms.

The loss of weight, which is usually a pronounced symptom in this affection, is best combated by confinement to bed as long as motor restlessness or marked physical debility is present. The fluid diet treatment is also very beneficial, though it does not require to be so rigidly adhered to as in the former variety of melancholia.

Patients suffering from demonstrative melancholia have usually been "ill" for some considerable time before they come under asylum treatment; their malady is well advanced and they, as a rule, take much longer to recover than the passive melancholic.

The employment of opium in the treatment of melancholia is condemned by some authorities and advocated by others. In the acute passive type of the affection opium is certainly contra-indicated by the morbid physical conditions present; on the other hand, in demonstrative melancholia opium often gives surprising results, especially in cases where the malady has been existent for some lengthened period. It should be given for its effect on the "mind" and not as a hypnotic; if insomnia is a distressing symptom it is best combated by trional given at bedtime; but, speaking generally, if the opium is producing a beneficial effect the employment of this hypnotic will be found unnecessary, sleep gradually returning as the delusions become less omnipotent. We have had better results with nepenthe than with any other preparation of opium or morphia. It should be given in gradually increasing doses and the amount gradually diminished as decided mental improvement is observed. While taking opium the patient should be put on an ordinary full diet and a small dose of calomel given every second or third day.

Trional is the best hypnotic for the insomnia of demonstrative melancholia. To paraldehyde there are two main objections: firstly, it generally requires to be given in an increasing dosage; and secondly, it tends to increase the motor agitation of this affection on the following morning, and more especially so in those patients who have previously been addicted to alcohol.

In *chronic melancholia* the blood pressure was generally low; an elevation occurred when the mental symptoms became more acute.

Mania.—Dr. Maurice Craig[3] found that acute mania was associated with a low pressure, the average blood pressure in 33 cases which he examined being from 105 to 110 millimetres of mercury. Although I have been able to note the blood pressure only in 16 cases of acute mania the reading obtained in each of them was invariably above normal, though it never attained the height observed in acute melancholia. Mental improvement was coincident with its descent though not to such a marked extent as in melancholia. The blood pressure was much lower if exhaustion was present.

In the case of recurrent insanity examination of the pulse suffices to demonstrate the rise in arterial blood pressure which ensues coincidently with the return of excitement. In women recovering from an attack of insanity the onset of the menstrual period is often associated with a recurrence of the previous mental affection, and although the mental disturbance may be only temporary it is, as a rule, accompanied by an increase in the tension of the pulse whether the relapse be characterised by excitement or by depression. The recurrence of excitement in cases of relapsing mania is usually heralded by certain premonitory symptoms such as insomnia, fits of restlessness, and sometimes by a feeling of general malaise. The blood pressure was observed to be raised from 10 to 20 millimetres of mercury during this prodromal period and it rose to a maximum as the acute attack developed. The "bromide sleep" was induced in a strong adult woman suffering from a very acute attack of mania, by giving three and a half ounces of sodium bromide in four days. There was no appreciable alteration in her blood pressure as the result of the administration of the drug and no benefit ensued, the maniacal condition returning as the "sleep" passed off. When the attacks of mania and melancholia in *folie circulaire* were of the acute type the blood pressure followed the course observed in the acute idiopathic varieties of those affections. The readings obtained in *stupor* varied according to the variety of the affection. In the anergic and secondary forms the blood pressure was generally subnormal and in no case more than 10 millimetres of mercury above normal; on the other hand, a much higher reading was obtained in the melancholic resistive variety.

General paralysis presents many types of insanity and the results obtained with the sphygmometer varied extremely, it being only in the later demented stages of the disease that the readings approached uniformity, and the blood pressure was in every case low. No alteration in the arterial pressure was observed in five cases of the disease examined before and after a congestive seizure.

Professor R. Stockman and Dr. F. J. Charteris[4] have shown

[1] THE LANCET, August 24th, 1901, p. 516.
[2] Pathology of the Mind.
[3] THE LANCET, June 25th, 1898, p. 1742, and Brit. Med. Jour., 1900.
[4] Brit. Med. Jour., 1901.

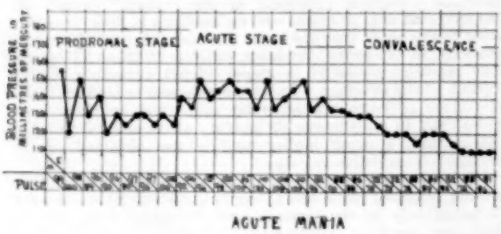
that the potassium salts when given in "ordinary quantities" do not usually cause any depressing effect on the heart or on the blood pressure in the arteries, and it would also appear that potassium bromide given in large doses has no depressing effect on the blood pressure in *epilepsy*, as in 34 cases of epileptic insanity examined a blood pressure of 130 millimetres of mercury was the average reading obtained. These patients were taking 90 grains of the drug per diem. In a case of epilepsy in a boy in whom the convulsive attacks were generally nocturnal and came on regularly nearly every day between 8 and 8.30 P.M. no alteration in his blood pressure was observed either before or after the seizure; on the other hand, in an adult woman suffering from the status epilepticus the blood pressure fell from 140 to 90 millimetres of mercury during the short intervals between the seizures—probably as the result of exhaustion.

In pure *senile mania and melancholia* the readings obtained corresponded to those registered in the same affections occurring in an adult or an adolescent; but the blood pressure was, as a rule, much above normal in that variety of senile insanity which is associated with dementia and which is characterised clinically by a constant fidgety motor restlessness; and it is in this form of insanity that drugs of the nitrite class are of most benefit.

In melancholia we have found the sphygmometer, in conjunction with other clinical methods, of great service in determining what stage of the affection was present and thus indicating the line of treatment to be adopted.

The blood pressure in mania appears to be considerably modified by the presence of general physical debility, and thus restlessness in the chronic maniac of poor physique is as a rule associated with a normal or even low blood pressure, though an elevation may occur with any increase in excitement. Without the presence of any organic disease to account for it some cases of senile dementia with constant restlessness as a marked symptom have a high blood pressure and these patients are often much benefited by the administration of such a drug as erythrol tetranitrate. As is well known an attack of mania is usually ushered in by certain premonitory symptoms and one of the commonest of these is mental depression. On the appearance of any of these premonitory symptoms it is often possible to ward off the acute attack by confining the patient to bed amidst quiet surroundings and by keeping him on a low diet—precisely as a case of melancholia may be treated. I have always found the symptoms, mental and physical, antecedent to an attack of mania to be accompanied by a rise in blood pressure. Dr. Bruce[5] stopped the onset of excitement or depression in patients labouring under *folie circulaire* by administering to them the thyroid extract and this agent lowers the blood pressure in addition to increasing metabolism. The sedative and hypnotic effect induced by sulphonal in excitement has also been found to be attended by a reduction of blood pressure.

I believe that mania is associated with a higher blood pressure than that attributed to it by Dr. Craig and Dr. W. R. Dawson[6] and also that the sedative effect of a hot bath on the excitement of an acute maniac is in part due to the reduction of blood pressure induced by this method of treatment. The "bed treatment" in cases of mania also tends to produce the same result by preserving the patient from sensory and emotional irritation.



ACUTE MANIA

I append a chart illustrating the course of the blood pressure observed in a case of acute mania which was under observation from the commencement of the affection.

Aberdeen, N.B.

[5] Edinburgh Hospital Reports, 1899, 1900.
[6] Dublin Journal of Medical Science, 1900.

VERMIFORM APPENDIX, CONTAINING FÆCAL CONCRETION ON A BLACK PIN, REMOVED AFTER DEATH FROM A CHILD, AGED SIX YEARS;

ILLNESS TWO DAYS AND NO MEDICAL MAN CONSULTED.

BY JOHN D. MALCOLM, F.R.C.S. EDIN.,
SURGEON TO THE SAMARITAN FREE HOSPITAL.

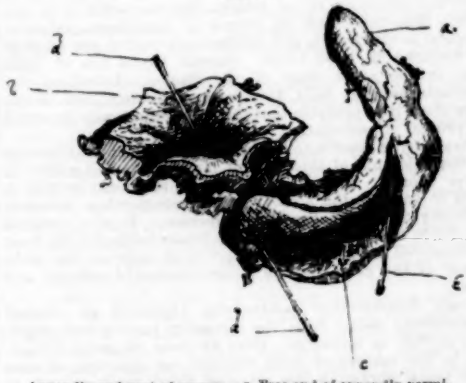
THE concretion which is figured below was exhibited at the meeting of the Pathological Society of London on April 29th, 1902. It was sent to me, with the vermiform appendix in which it was found, by Dr. Percy Rendall of Ewell; and Dr. C. Hubert Roberts has kindly made the accompanying sketches.

The patient, a female child, whose illness lasted for two days, was not attended by any medical man, but Dr. Rendall was sent for after her death. He was told that the girl was six years old and had shown no evidence of abdominal mischief before Oct. 7th, 1901. On that day she was at school and quite well. In the evening she was seized with

FIG. 1.

Concretion.—*a*, The concretion. *b*, Head of pin. *c*, Point of pin.

FIG. 2



Appendix and part of cæcum.—*a*, Free end of appendix vermiformis. *b*, Portion of cæcum removed with appendix. *c*, Portion of appendix opened up to show region which contained the concretion shown in Fig. 1. *d*, *d*, Glass rod passed through from cæcum to opening in appendix. *e*, Glass rod passed into canal towards the blind end of appendix.

violent pain in the abdomen, vomiting, and diarrhœa. The next day she was better, off and on, but on the 9th she died suddenly. The body was opened by order of the coroner. The small intestine and mesentery were found to be glued together by inflammatory adhesions so as to shut off the pelvic cavity. The appendix was in a gangrenous state beneath the adherent coils and close to the peritoneum covering the sacrum. Liquid fæces had exuded and had filled the pelvic cavity. On incising the appendix the concretion was exposed and it was noted that the point of the pin was directed towards the tip of the appendix. Before the drawing was made the concretion had shrunk so as to expose more of the head and point of the pin than was shown in the fresh moist state.

The case is interesting as it shows that the most serious mischief connected with the vermiform appendix may excite

no real anxiety in the minds of a patient's friends. Prompt interference by operation was the only treatment that offered any chance of saving the patient's life, but if a medical man had been consulted immediately after the onset of symptoms it is obvious that examination of the parts in a child aged six years would have been difficult and unsatisfactory, and the surgeon, however great his experience, might have failed to grasp the full gravity of the case in time to perform a successful operation.

Portman-street, W.

DIFFICULTIES IN THE DIAGNOSIS OF SMALL-POX.

BY W. T. FREEMAN, M.D. DURH., F.R.C.S. ENG.

AN interesting paper on the above subject by Dr. W. M. Young appears in THE LANCET of June 7th, p. 1598. The following case also seems worth reporting.

An unhealthy-looking boy, 10 years old, was seen by Mr. J. G. Braden of Reading on March 15th, 1902. The patient was feverish and covered with a rash of the scarlatiniform type. There was some subsequent peeling but no albuminuria. The case was notified as one of scarlet fever. He soon became better of this attack, but on March 25th to the 27th he again became very ill. His temperature was high (from 100° to 103° F.) and node-like swellings appeared on the front of the tibia and over the forehead and left orbit. He had also swelling apparently both in and around the left knee-joint. I saw the boy in consultation with Mr. Braden on April 3rd and he had still a high temperature and the swellings referred to were still in evidence, and he had developed additionally a profuse bullous rash; the vesicles or bullæ ran in size from that of a pin's head to near the diameter of a shilling-piece. The bullæ were principally grouped on the legs and buttocks, but some were also present on the arms and lower abdomen. Some of them had an umbilicated appearance and all were hæmorrhagic. They were commencing to dry up, but tests applied as carefully as possible practically proved them to be multilocular. The history of this second rash was that it first appeared as a papular one and subsequently became vesicular and bullous. There was a largish bulla on the left side of the tongue. The boy seemed to be very ill. He had all the appearances of a congenital syphilitic—typical upper incisors, flattened bridge of nose, scars at the angle of the mouth, &c. He had good vaccination marks but had not been re-vaccinated. On the 7th he was much improved, the vesicles and bullæ were dried up into hæmorrhagic scabs, the swellings had nearly disappeared, and the temperature was normal. The patient recovered.

When I saw him on April 3rd I could not help wondering whether we were not dealing with an anomalous case of variola in a partially protected but specifically unhealthy child. The scarlatiniform rash, I thought, possibly might have been "a prodromal rash" and I was particularly impressed with the multilocular character of the lesions. The patient had been previously seen by the medical officer of health of Reading (Dr. A. Ashby) and we all determined to hold our hands as to variola. Dr. Ashby was not much in favour of small-pox and I declared myself more in favour of a peculiar bullous form of peliosis rheumatica than of variola, although the apparent multilocular character of the lesions was puzzling. Upon a second visit, paid two days later, I gave up the last shred of an idea of its having been the more formidable infectious disorder. I believe that the whole condition was a developmental erythema—an erythema of the nodose type passing on through stages to a bullous type of rheumatic purpura. An unhealthy subject amidst not the best of surroundings and with a syphilitic taint, the boy was no doubt predisposed to the anomalies, both subjective and objective.

It is right to add that Mr. Braden, the patient's original medical attendant, is still inclined to think that the primary rash was scarlet fever and that the symptoms and rash of ten days later were of distinct origin. It should also be added that as the boy improved he was vaccinated and a full reaction resulted.

Reading.

A Mirror of HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quampluritmas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET.

A CASE OF BILATERAL STRANGULATED HERNIA IN AN INFANT.

(Under the care of Mr. T. H. KELLOCK.)

IN infants under the age of one year it is rare for strangulated inguinal hernia to occur, but it must be extremely rarely that in a young child strangulation should occur in herniæ on both sides of the body. In THE LANCET of June 1st, 1901, p. 1536, we quoted some statistics as to the occurrence of strangulated hernia in infants, to which we refer our readers.

An infant, aged 10 weeks, was admitted to the Hospital for Sick Children, Great Ormond-street, on March 8th, for irreducible right inguinal hernia. The mother stated that when the child was seven weeks old she first noticed a swelling in the right groin; for this she attended the out-patient department and circumcision was performed on March 4th; at that time the hernia disappeared when the child was quiet and still. She had never noticed any swelling on the left side. On the 6th the swelling was noticed to become larger and more tense and could not be got back; it remained down for the two following days, during which the child was very fretful and vomited occasionally after taking the bottle. On admission the patient appeared to be a healthy well-nourished child but very fretful, crying almost continuously; he had a hernia in the right inguinal region which was found to be irreducible under an anæsthetic; it was therefore operated on and was found to contain a knuckle of small intestine tightly constricted at the inguinal ring, which was very small. The bowel was dark blue in colour and deeply marked where it had been constricted. There was an almost total absence of fluid in the sac. Before the bowel could be reduced a rather free incision had to be made in the constriction at the neck of the sac and after it had been reduced the sac—to which the vas deferens was closely adherent—was ligatured at the neck and removed. Two silk sutures were used to close the inguinal canal. The external wound was sutured and dressed with gauze and collodion.

The child progressed favourably but cried a great deal. On March 10th a hernia was found in the left inguinal region which was reduced with some difficulty. On the 18th the wound was healed and the stitches were removed. On this day the hernia on the left side was present again but was easily reduced. On the 19th the child was discharged wearing a skein truss on the left side. He was re-admitted four days later, the hernia in the left groin having been irreducible for five hours. On the evening of that day an operation was performed and there was found an almost precisely identical condition to that which had been seen on the right side. The same treatment was adopted, the wound healed rapidly, and he was again discharged. When seen some time afterwards in the out-patient department the condition was quite satisfactory; the wounds were soundly healed and there was no sign of return of either hernia.

Remarks by Mr. KELLOCK.—Except for the rarity of strangulated hernia occurring on both sides at so short an interval there is little in this case calling for comment. The child had probably a partially closed funicular process of peritoneum on both sides and into these successively the almost constant pressure from crying drove a knuckle of intestine. The inguinal rings on both sides were very small and had to be rather freely incised before the bowel could be reduced. This is probably always the most difficult part of the operation in an infant and it is better to be free with the incision rather than to use any force in attempting to

reduce the very slender and congested bowel. The absence of fluid in both sacs was perhaps rather unusual and necessitated an extra amount of care in opening them.

LEICESTER INFIRMARY.

A CASE OF DECIDUOMA MALIGNUM.

(Under the care of Mr. H. J. BLAKESLEY and Dr. R. SEVESTRE.)

CASES of deciduoma malignum are of sufficient rarity to make it desirable that they should be published, especially when the post-mortem and histological records are complete. The following case illustrates well all the typical features of the disease.

A married woman, aged 31 years, was admitted into the Leicester Infirmary in October, 1901. She stated that eight months before admission she had passed through a normal confinement, being attended by a midwife, and that one month afterwards menstruation occurred naturally. 10 weeks after her confinement she began to lose blood per vaginam and continued to do so up to the date of admission except for short periods when blood-stained fluid was observed. She had been rapidly failing in health and losing flesh, especially during the last three months, and had complained of severe cough for about three weeks, with dyspnœa of late on the slightest exertion. Four or five days previously to admission she had noticed two swellings on the left side of the vulva. The patient's history was as follows. She began to menstruate at the age of 14 years and was married at 21 years. She had had seven children, three of whom were still-born; she had had no miscarriages. On admission her condition was that of an emaciated and anæmic woman with flushed cheeks and frequent short dry cough and raised temperature. She did not complain of any pain. On examination of the heart a systolic murmur was heard which from its position and character was believed to be hæmic in origin. Coarse moist sounds were heard over the lungs which were most marked at their bases. On abdominal examination nothing of an abnormal character was found. On vaginal examination an oval, smooth, non-fluctuating swelling of a deep purple colour and of about the size of a walnut was found situated on the inner aspect of the posterior half of the left labium majus; immediately internal to this, but separate from it, was a smaller swelling of a similar character, with superficial ulceration on its surface. The cervix was in the middle line and was patulous and torn on the left side. Bimanually the uterus was felt to be enlarged and retroverted but moveable. The catheter specimen of the urine was found to be free from albumin and sugar. The case was believed to be one of retained products of conception.

On the third day after admission the patient was anæsthetised with ether, the cervix was drawn down by a vulsellum, and after Nos. 12, 13, and 14 Hegar's dilators had been passed the finger was introduced. A lobulated, firm, sessile mass was felt occupying the cavity of the uterus, being attached to the left upper half of the organ; by means of the finger and curette the greater part of the mass was removed piecemeal. The fragments removed had the appearance of hardened placental tissue. The amount of blood lost during this procedure was very small in quantity and the uterus contracted firmly. On incising the mucous membrane over the swellings in the vulva their contents readily shelled out and consisted of blood-clot with firmer strands running through them. The patient rallied well after the operation; there was no further hæmorrhage, only a slight blood-stained watery discharge. Her general condition appeared to improve after the operation for a few days, but very soon the lung symptoms became more severe; the temperature ranged between 101° and 102° F., but there were no rigors or other evidence of septic infection, and she died on the seventeenth day after admission.

Portions of the material removed by the curette were sent to the Clinical Research Association and the report received was to the effect that it was a case of deciduoma malignum.

Necropsy.—At the post-mortem examination the uterus was found to be larger than normal. On its anterior surface between the middle line and the upper part of the left broad ligament were two tuberosities placed almost vertically, but quite separate from each other, which were clearly portions of growth. Each tuberosity had a smooth and rounded outline; the lower one, the larger of the two, was inclined to be conical in shape, with a base of about one inch in diameter. In colour they were dark red. To the touch they were softer than the surrounding parts but did not give the sense of fluctuation; the peritoneum covering them was smooth and bright. The rest of the external aspect of the uterus presented a normal appearance. The uterus was opened by a vertical incision on its anterior aspect. Its cavity presented the appearance that would be expected after curettage except in the part beneath the tuberosities, where the surface was irregular and of a dark-red colour, this clearly being a portion of the growth that the curette had not reached. On the left labium majus there were two raw surfaces from which growths had been removed at the operation. Both lungs were studded on their surfaces with secondary growths which in outline were round and of a dark-red colour; these growths were more numerous at the base than at the apex, the largest being of about the size of a walnut. On section of one of these secondary nodules a reticulated appearance was seen with what appeared to be blood-clot in the spaces. It was not found possible to make a complete post-mortem examination but no evidence of growth was observed in other organs.

On examining a microscopic section of the uterus the margin of the growth was seen to be made of masses of cells forcing their way into the surrounding tissue. These cells were not arranged in alveoli. Internally to the growing margin were seen the remains of the cells of the normal tissue with cells of the new growth and much extravasated blood; this gradually merged into a part where no definite structure could be made out but which appeared to consist of blood-clot and broken-down tissue. On further examining the growing margin two varieties of cells were to be seen. The greater number of cells which had no stroma between them were larger and round or ovoid, with deeply-staining nuclei; in some the nucleus had contracted to one side, leaving a vacuole. Besides these single cells there were here and there masses of protoplasm containing a number of nuclei, the so-called syncytium; on closer examination, however, these multi-nucleated masses suggested that they were made up of numbers of large ovoid cells fused together. There was no appearance of new fibrous tissue. Immediately behind the growing margin a section showed patches of extravasated blood mixed with the tumour cells and it was by no means easy to say what relation the blood-vessels had to the cells of the tumour.

Remarks by Mr. BLAKESLEY *and* Dr. SEVESTRE.—This case illustrates the chief symptoms of the disease, in the first place following on pregnancy, in a multipara, the early appearance and continuance of hæmorrhage, the rapid wasting with hectic temperature, and signs pointing to extensive disease of the lungs. Most of the above symptoms and signs are such as are common to cases of retained products of conception and, as a rule, the diagnosis is made from microscopic section of a portion of the growth after removal. It further illustrates the extreme malignancy of this disease, death occurring seven months after the history of its commencement. Although the signs and symptoms of this disease are sufficiently clear for it to have a distinct clinical entity the same cannot be said of its pathological character and there is much diversity of opinion as to whether it should be classed among the carcinomata or sarcomata. The distribution of the secondary growths by the blood-stream and some of the features noticed in the description of the microscopic section appear to support the view, which is generally held, that these tumours ought to be classed among the sarcomata.

Several views are held in regard to the origin of these tumours; by some it is thought that they arise in the uterine tissues and are modified by pregnancy or its results, by others that they arise in decidual tissues. It is important to remember that these tumours always occur within a few weeks or months after abortion or delivery at term or not infrequently after the condition called hydatidiform mole. If it arises in tissues not connected with the decidua of pregnancy it is curious that its effects are noticed after delivery and not before. As regards the structures in the decidua from which the tumour may arise there is much diversity of opinion and this point is not likely to be settled till more is known of the tissues in which the placenta arises. By some the growth is considered to be a carcinoma and this view is based on the resemblance of cells to the syncytium of the chorionic villi, the syncytium being considered to be epiblastic in origin. Whatever may be the ultimate views held as to its origin it is at present clear that in regard to

rapidity of growth, dissemination, and the short time it takes to destroy life, it must be considered as one of the most malignant tumours known.

References.—Hart and Barbour: fifth edition; Allbutt: System of Gynæcology; Journal of Pathology, vol. v., p. 358.

Medical Societies.

OPHTHALMOLOGICAL SOCIETY.

Secondary Carcinoma of the Eye.—Leprous Ulcer of the Cornea.—A Doubtful Case of Atropine Poisoning.—Bilateral Congenital Microphthalmus.—Colloid Degeneration of the Conjunctiva.—Exhibition of Cases and Card Specimens.

AN ordinary meeting of this society was held on June 12th, Dr. DAVID LITTLE, the President, being in the chair.

Dr. W. C. ROCKLIFFE (Hull) read notes of the termination of his case of Secondary Carcinoma of the Eye exhibited to the society in July, 1901. The left eye was excised on July 12th, 1901, and the specimen and slide, kindly mounted by Mr. W. T. Lister, then pathologist to the Royal London Ophthalmic Hospital, showed the cornea to be healthy with a rather shallow anterior chamber, the angle being narrowed but not closed, the lens being apparently healthy and *in situ*, and the vitreous entirely absorbed. Situated at the posterior part and extending from the optic nerve to the ciliary processes was a large flat unpigmented tumour (which at the optic nerve appeared to be about from two to three millimetres in thickness and gradually tapered as it advanced) originating in the choroid. The retina was completely detached. Microscopically the growth was limited to the choroid and consisted of numerous round cells grouped together with connective tissue. Hardly any pigment cells were discernible except in the anterior half of the choroid where they lay internally to the new growth and from which they appeared to be entirely free. The vessels were new and were entirely confined to the connective tissue network. The optic nerve also had several tumour cells scattered among its fibres and the sclerotic at the posterior portion was sparsely infiltrated with the same. There were several areas of degeneration in this growth. On July 30th vision in the right eye was $\frac{1}{V}$. Detachment of the retina was increased and there was shooting pain round the eyeball. On August 10th there was an attack of pleurisy from which the patient appeared to recover, but later there were stiffness, pain, and swelling in the left leg. The right optic disc was congested and the entire retina was swollen and further detached. The patient died on Nov. 30th, the most troublesome symptoms having been vomiting and paroxysmal cough. Vision had gradually deteriorated but there was little or no pain in the head or in the eye. The patient had also continual constipation and was comatose during the last 48 hours. It appeared that secondary carcinoma of the eye more commonly followed carcinoma of the breast, affecting females rather than males between the ages of 40 and 60 years. The tumour was flat and consequently tension was not increased. Duration of life, though varying after the first appearance of eye symptoms, did not usually exceed two years.—Mr. W. T. HOLMES SPICER cited a case in which metastasis occurred in one eye 30 months after removal of the breast for cancer. Two separate detachments of the retina were noted; the appearance varied but the tension was not raised. Nutrition being good the eye was removed a few weeks ago and flat scirrhous growths were found opposite the detachments. It was a difficult point to decide whether the eye should be removed in these cases.—Mr. A. HILL GRIFFITH said that these flat wafer-like growths were usually due to carcinoma of the choroid following a primary growth in the breast. He thought, however, that sarcoma of the choroid if seen in an early stage would have a similar appearance and he cited a case in which he had removed an eye having this appearance and had found the growth to be sarcoma.—Mr. C. DEVEREUX MARSHALL said that the tendency of carcinoma was to spread laterally, whereas sarcoma assumed a mushroom shape, but in the early stage the resemblance was very close. Carcinoma occurred secondarily in the eye probably more often than had been supposed, and since attention had been directed to the matter several cases had been recorded, in advanced cases of cancer defects in the eye were either overlooked or not paid much attention to.

Dr. ROCKLIFFE then read notes of a case of Leprous Ulcer of the Cornea in a young man, a native of the West Indies. He exhibited prints of skiagrams showing the various bone changes taking place in this disease. He also referred to the obstinacy of the corneal ulcer to treatment in spite of frequent galvano-cauterisation, &c.

Dr. ROCKLIFFE also read notes of a case of Supposed Death from Atropine Poisoning. The patient (one of four survivors of a family of 12) was a very delicate-looking child, aged 10 months, who had suffered from convulsions most of this time. He first of all put three drops of a 1 per cent. solution of atropine in the eyes which did not dilate the pupils fully. More atropine was applied, but during the 30 hours which elapsed from the first using of the atropine only seven drops were used, one-seventeenth of a grain. The temperature rose to 105·6° F. The pulse was uncountable and the respirations were 72; the skin was red and the lips had a quantity of mucus about them. In this state the child died. Nothing abnormal was found post mortem.

Dr. A. BRONNER (Bradford) read notes on Two Families with Bilateral Congenital Microphthalmos and Cataract. In one case the father and four out of eight children were affected; these were numbers 3, 5, 6, and 8. The eyes of the mother were normal. There was no consanguinity nor was there any history of syphilis. In the other series the mother and all the four children were similarly affected. The paternity of the children was somewhat uncertain. The maternal grandmother was said to have had similar eyes.—Dr. D. ARGYLL ROBERTSON had once operated on a boy with this condition, the father having similar eyes and having previously undergone a successful operation for the removal of his cataract. In both fair vision resulted, though the eye was only two-thirds of the normal size.—Dr. P. H. MULES thought that in such cases there was usually congenital syphilis. He referred to two cases of the kind.—Mr. PRIESTLEY SMITH said that there was no hard-and-fast line to be drawn between the small eye and the microphthalmic one. If the diminished size was very marked probably the lens was small and opaque, but if the lens was clear and full sized then glaucoma was almost certain to result. On the whole he thought that the subjects of the former variety were less liable to become blind than were those of the latter. He had attended a father and daughter with small eyes, the cornea measuring only 10½ millimetres. Both had glaucoma.—Mr. W. A. FROST thought that those having a congenital coloboma were less liable to glaucoma.—Professor FUCHS (Vienna) had seen but one case: a man who had lost an eye from acute blenorrhœa had a child who suffered from microphthalmos on the same side.

Major H. HERBERT, I.M.S., described a case of Colloid Degeneration of the Conjunctiva. This affection had been wrongly named "amyloid" or "hyalin" degeneration. Similar changes had been found rarely in the skin of old people and had been correctly described by dermatologists as "colloid" degeneration. The ocular conjunctivæ only were affected, the palpebral portions being occupied by scar tissue from old trachoma; a swollen translucent fold overhung the upper third of each cornea. The change consisted mainly in a swelling and breaking up and rearrangement of white connective tissue fibres (collagenous) and also of elastic fibres. In the deeper tissues the new material became moulded into rounded and elliptical blocks, probably by constant stretching and movement of the fold. In the centre of many of these blocks plasma cells were inclosed, more rarely smaller masses of colloid or masses of blood pigment. Other blocks with central cavities represented the remains of blood-vessels. On the other hand, other blood-vessels had undergone rarefaction of their walls, instead of colloid thickening and occlusion. Many of the blocks had connective tissue cells closely applied to them. Special staining with acid fuchsin and acid orcein showed imbedded in many of the blocks the remains of white connective tissue fibres and in others elastic fibres. But the change was so advanced in the tissue examined that it was only close beneath the epithelium, in a layer of adenoid tissue, that the transition from collagen to colloid could be followed. In this layer a few true hyalin balls were to be found, and both here and in the deeper tissues many golden pigment granules the remains of hæmorrhages. Here and there some of the deeper colloid had coalesced into large and rather firm opaque waxy masses two or three millimetres

or more in diameter. In the central portions of these masses there were no blood-vessels and only the remains of cells, consisting of groups of small particles and larger spheres with some affinity for hæmatoxylin. There were still a few bands of white connective tissue remaining, but they were degenerating on lines rather apart from the primary colloid change; there were also some free elastic fibres mostly clumped near blood-vessels. Some of the latter showed basophile degeneration—elacin. The only approach to amyloid reaction found was a faint indigo-blue with iodine and sulphuric acid in a few of the blocks; all alike stained pale brown with iodine alone and none of them gave any trace of pink with methyl and gentian violet.

The following cases and card specimens were shown:—

Major M. T. YARR, R.A.M.C.: Indirect Contusion Injuries of the Left Eye, resulting in Blindness, following a Mauser bullet wound of both superior maxillary regions.

Mr. J. H. PARSONS: Sections of a case of Microphthalmos.

Dr. LESLIE BUCHANAN: Traumatic Separation of the Ciliary Body from the Sclera.

Mr. M. STEPHEN MAYOU: (1) Rodent Ulcer of the Face treated by X Rays; and (2) a case of Trachoma treated by X Rays.

Mr. ARNOLD LAWSON: Partial Embolism of the Central Artery of the Retina in a lad, aged 18 years.

Mr. SPICER: (1) Thrombosis of the Retinal Veins, with Cystic Degeneration of the Retina and Yellow Spot; and (2) Vessels of New Formation on the Anterior Surface of the Iris.

The Bowman Lecture.

The Bowman Lecture was delivered before the Ophthalmological Society on June 13th by Professor ERNST FUCHS of Vienna. It was a learned address on an avowedly intricate subject and was illustrated by enlarged drawings not yet in a state for reproduction.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.

Heart Disease in Children.—Infantile Paralysis.—Displacement of Testes.—Fleeting Amauroses in Children presenting Symptoms of Meningitis.—Hypertrophy of the Right Great Toe.

THE provincial meeting of this society was held at Manchester on June 21st, Dr. HENRY ASHBY (Manchester) being in the chair. Prior to the meeting, which was held at 4 P.M. and at which many London and provincial representatives were present, cases were demonstrated in the wards of the Manchester Hospital for Children by the honorary medical staff.

Dr. A. E. SANSOM read a paper on Heart Disease in Children. He said that the chief affections of the organ were rheumatic, but not always, and were not often associated with painful and diseased joints. The chief groups of them were: (1) the temporarily swollen and enlarged heart of rheumatism; (2) the heart of rheumatic pericarditis; (3) the heart of rheumatic endocarditis with resulting valvular disease; and (4) the heart of slow and insidious rheumatic endocarditis inducing mitral stenosis.—Dr. E. CAUTLEY showed a specimen of Atresia of the Conus Pulmonalis and Patency of the Septum Ventriculorum. The child died at 12 months of age from cardiac failure during an attack of dyspnœa. Dr. Cautley thought that cases of congenital heart disease should be divided into two groups—those due to developmental error and those due to fœtal endocarditis. Occasionally the two factors might be coexistent. He regarded congenital syphilis as the first cause of developmental error.—Dr. THEODORE FISHER (Bristol) thought that the most striking feature of heart disease in children was pericarditis. Dilatation slight in amount occurring in rheumatism was not serious. He thought that myocarditis and pericarditis showed that the heart was poisoned as a whole. He agreed with Dr. Cautley's classification of congenital heart disease. A patent foramen ovale was very common and could be found in one-fourth of adult necropsies if it were looked for.

Mr. W. P. MONTGOMERY (Manchester) read a paper on the Results of Tendon-transplantation in 25 Cases of Infantile Paralysis of the Lower Extremity. The cases were classified into various groups and the results of the various methods employed were given. The work of re-education was often very slow but the final state was good. A number of cases were shown in the wards prior to the meeting.

Dr. C. N. GWYNNE (Sheffield) read the notes of a case of Infantile Paralysis of the Leg which he had treated by excision of the knee, the ankle, and the tarsal joints. The result was most satisfactory and the boy could walk well, though with a stiff leg, but without any evidence of deformity beyond some shortening.—Mr. R. CLEMENT LUCAS spoke of the old-fashioned way of treating such cases by tenotomy with results which were not encouraging and of the great advance of the present methods. He had himself done more in the way of excising the bone in the extreme cases of deformity than had been done in the present series.—Mr. WALTER EDMUNDS thought the cases were very successful and regretted the shortness of the time at the disposal of the society for discussion.—Mr. JOSEPH COLLIER (Manchester) agreed that the best way was to graft tendon on to the periosteum, if that could be done and the tendon were long enough. He had more experience of arthrodesis in cases where the limb was flail-like.

Mr. CLEMENT LUCAS read a communication on a case of Displacement of both Testes in Perineo with an Inguino-Perineal Hernia on the Right Side. No deformity had been noticed till the sudden descent of a hernia on the right side at the age of three years drew attention to the displacements. A photograph showing the double displacement was exhibited. A radical cure of the hernia and replacement of the testes had been affected.

Mr. SYDNEY STEPHENSON related a series of cases in infants who while suffering from symptoms indicative of Posterior Basal Meningitis became Blind without Ophthalmoscopic Changes. Sight was ultimately completely recovered. The title of his paper was Fleeting Amauroses in Children presenting Symptoms of Meningitis.

Dr. R. C. DUN (Liverpool) read notes of a case of Hypertrophy of the Right Great Toe (radiograms, photographs, and a cast of the foot were shown). The deformity occurred in a girl, seven and a half years of age, and no overgrowth had been noticed until the child was five years old. The whole of the tissues of the toe were increased, the bones taking part in the hypertrophy. The greatest development was of a lipomatous nature. A definite fatty mass was present on the dorsal surface of the terminal phalanx.—Mr. CLEMENT LUCAS said that many such cases of hypertrophy were nævoid lipomata and asked if there was any nævoid condition of the toe and Dr. DUN replied that there was not.

After a vote of thanks to the chairman and to the hospital authorities for the use of the hospital the meeting terminated.

Subsequently dinner was served at the Queen's Hotel, Dr. SANSOM presiding. The dinner was well patronised and it passed off successfully.

On the following day the members and their friends enjoyed a trip into Derbyshire. After a country drive from Grindelford luncheon awaited the party at the "Peacock," Baslow, where they also partook of tea after a visit to Chatsworth, and they were subsequently driven to Bakewell station in time for the evening train for London and for that for Manchester and Liverpool.

The provincial meeting next year will take place at Brighton.

The annual general meeting of the society will be held at the Hotel Cecil, London, at 6.30 P.M. on Wednesday, July 16th, and will be followed by dinner at 7.30 P.M., at which guests will be welcomed. Dr. Henry Ashby will be in the chair.

BOARDS OF GUARDIANS AND VACCINATION.—The public vaccinators of St. Germans, Cornwall, have forwarded a petition to the Local Government Board in reference to vaccination in the St. Germans Union. The petitioners complain that since Jan. 1st, 1902, in compliance with demands from the clerk of the guardians, they have been compelled to send their vaccination registers on five occasions. Consequently they have been unable to enter particulars in the register at the time of vaccination and inspection. The petition, in conclusion, adds "that in view of the pressure brought by various boards of guardians to prevent persons availing themselves of the benefits of the Vaccination Acts it would be for the public advantage if the administration of the Acts was taken out of the hands of the local authorities, and that public vaccinators should carry out their duties directly under the Local Government Board."

Reviews and Notices of Books.

A Handbook of the Gnats or Mosquitoes, giving the Anatomy and Life-history of the Culicidæ, together with Descriptions of all Species noticed up to the Present Date. By Lieutenant-Colonel G. M. GILES, M.B. Lond., F.R.C.S. Eng., I.M.S. (retired). Second edition. London: John Bale, Sons, and Danielsson. Pp. 530, 17 Plates, and 53 Figures in the text. 1902. Price 21*s.* net, post free abroad 22*s.* 6*d.*

THE appearance of this second edition of Lieutenant-Colonel Giles's well-known work is not precisely opportune. We have just noticed the recently published monograph of this group by Mr. Theobald, which seems to include most of the information gathered together in this book and which is a good deal fuller in the systematic part. Nor is the present work so extremely low in price as to render it a "cheap substitute" for the fuller monograph issued by the Trustees of the British Museum. All this, however, is not in the least Lieutenant-Colonel Giles's fault and if his publishers chose to bring out a second edition at the present juncture that is their affair. But it is difficult to understand why they did not produce a work of more attractive appearance and handier in size. The author himself does not enlighten us much as to the reasons which led him to comply with the demand on the part of his publishers for a new and revised edition. He has admittedly culled from the pages of Mr. Theobald's three volumes the descriptions of such species as were not described in the earlier edition. In justice to Lieutenant-Colonel Giles, however, we may point out that the introductory chapter dealing with structure, life-history, and the connexion of mosquitoes with malaria occupies a considerably larger number of pages than are devoted to these aspects of the matter in the British Museum treatise; the latter, indeed, is mainly systematic. Moreover—and this unquestionably adds to the value of the book—the present author has depended largely upon his own first-hand knowledge in preparing his handbook. We should have thought, however, that "a couple of months of constant work with the microtome and by dissection" was by no means an excessive amount of labour to bestow upon so important and vast a subject. The volume bears evident traces of an enthusiasm for the subject; so marked, indeed, is this that Lieutenant-Colonel Giles reads mosquitoes into everything, and even where he is writing of the flea terms the family to which the pest belongs "culicidæ" instead of pulicidæ. All the chief facts about these pestilent flies are brought out with clearness and the reader will undoubtedly find himself, after studying the author's statements, a master of what is to be known generally about the group. The illustrations, though not by any means perfection, are at least intelligible and will aid the reader greatly.

Early in the book Lieutenant-Colonel Giles dispels a common error of newspaper correspondents concerning the mosquito. Everyone has observed from time to time a paragraph relating to the arrival of mosquitoes in this country and the reason for the arrival is attributed to the hot weather. The latter part of the statement is, as a rule, correct, but there is no arrival. The local swamp and pool provide us with sufficient mosquitoes of home growth which are quite up to the recognised standard in biting capacity. But, as the author justly observes, as a rule they do not bite unless under the provocation of extreme heat. Hence the energy of the Indian bred species and, we may add from personal experience, those of Lapland which are not a whit inferior in biting power and close application to their business to any mosquito that can be hatched elsewhere. The mosquito—and, of course, by this word we understand members of the family culicidæ and not any and every biting and stinging winged creature—is, curiously enough, not naturally a bloodsucker at all. In India the author observed that the contents of the alimentary canal of both sexes consisted largely of pollen grains, the occurrence of which, he remarks incidentally, has led to some confusion with the parasites which the mosquitoes convey. An inexpert microscopist might confuse the vegetable cell with an animal parasite. Besides pollen mosquitoes enjoy the "preserved fruit and sweets laid out for dessert on an Anglo-Indian dining table" and generally anything that is semi-liquid and toothsome. That they feed often, and perhaps usually, by piercing the tender stems of plants, has long been known and Lieutenant-Colonel Giles is so desirous of emphasising this really rather well-known fact that he actually mentions it twice on the same page. We notice, indeed, a little tendency here and there to unnecessary repetition, to be explained perhaps by the somewhat hasty preparation of this second edition. For instance, the author refers twice to the uninstructed paragraph of the English newspaper concerning the supposed advent of immigrants of the culex family. The mosquito "winds its sultry horn," as might be supposed, mainly in hot weather. But, oddly enough, it does not like direct sunlight; it haunts shady corners. But the larva, at any rate of anopheles, must have sunlight, so different are the two phases of life of this parasite.

The author gives some important information which has a bearing upon the spread of these flies from country to country. Such minute creatures might well be supposed to have no geographical distribution in particular. Here, as elsewhere, it is almost impossible to distinguish between indigenous species and those which owe their occurrence in any given country to direct, though unintentional, transport by man. Thus the "ubiquitous" mouse has gained this epithet through the commercialism of man. The cockroach and that unmentionable six-legged denizen of bedsteads were once rare oriental creatures. Lieutenant-Colonel Giles especially points out that the sea, sea air, and sea water are fatal to both mosquitoes and their larvæ. "While serving as naturalist," he writes, "to the Indian Marine Survey I was necessarily at sea for months together, and though butterflies, dragonflies, and other flying insects often boarded us far out at sea I found no evidence of small and delicate species being transported in this way." He adds that when fairly out at sea the mosquito visitors which invaded the ship in cheerful numbers while in dock rapidly diminished and eventually disappeared. There is no doubt that even the most tender insects can often fly much further than is generally supposed—witness, for instance, the migrations of various butterflies. But even granting the strength of wind sufficient to convey a mosquito across an arm of the sea the passage would be impossible. As the author acutely points out, the very fact that sunlight is fatal to its well-being would prevent such an excursion and the possible and consequent stocking of a new country with these diptera. Nor can the mosquito overcome the difficulty of transport by voyaging willy-nilly in the larval stage. Lieutenant-Colonel Giles quotes Professor Celli to the effect that the young of anopheles died in 13 hours in salt water and that even brackish water was fatal with comparative rapidity. That mosquito larvæ haunt marshes of a saline character has been often asserted but apparently on but slender grounds. In short, carriage by land is the only way in which a mosquito can extend its range. It is often pointed out, and probably most persons who know anything about the matter at all think, that the genus anopheles is to be distinguished from culex by its habit of standing on its head, so to speak, when at rest. This is another common

fallacy which the author disposes of; his observations upon a new specimen of anopheles seem to show that this acrobatic mode of resting is not peculiar to that genus.

But here we must take our leave of this work which certainly contains much of interest and something of novelty. If the author had been better supported by his publishers in the way of "get up" we should have predicted a considerable circulation for this epitome of the structure and classification of mosquitoes.

Encyclopædia Medica. Under the general editorship of D. CHALMERS WATSON, M.B., F.R.C.P. Edin. Vol. IX.: Osteo-arthropathies to Pregnancy (Physiology). Edinburgh: William Green and Sons. 1901. Pp. 518. Price 20*s.*

THE first contribution of importance in this volume is one on Diseases of the Ovaries, by Mr. Alban H. G. Doran. Brief remarks are made on the common affections of the ovary, and tumours of that organ are also described. The comments on ovarian cysts are well worthy of attention; an excellent description is given of the anatomy of the capsules, a knowledge of which is of high importance to the surgeon.

Dr. J. W. B. Hodsdon, assistant surgeon to the Royal Infirmary, Edinburgh, writes on Injuries and Diseases of the Palate and Hare-lip. He gives a good account of the operative procedures which are necessary for the relief of cleft palate, not forgetting the after-treatment in the way of training the voice. Much care and patience are required to enable the patient to speak properly and two main objects have to be obtained: to develop the muscles of the palate by exercises and to correct the faulty habit of speech.

The Physiology of the Pancreas is described by Dr. J. A. Milroy, late demonstrator of physiology, Yorkshire College, Leeds; whilst Mr. A. W. Mayo Robson, senior surgeon, Leeds General Infirmary, is responsible for the article on diseases of that organ. Mr. Robson believes chronic pancreatitis to be a much more common affection than are the acute and subacute forms and he has no doubt that some cases diagnosed as malignant disease of the head of the pancreas and terminating fatally are cases of chronic interstitial pancreatitis.

The subject of Paralysis is divided between three authors—Dr. J. S. Risien Russell, Dr. Frederick E. Batten, and Dr. James S. Collier. The present section deals with the so-called systemic lesions of the cord and other diseases of the grey and white matter. Descriptions are given of spastic paraplegia and infantile spastic paralysis, of family periodic paralysis, and of Landry's paralysis (acute ascending paralysis). Further, accounts are given of the forms of paralysis accompanied with atrophy of muscles. These include acute anterior poliomyelitis, subacute anterior poliomyelitis, chronic spinal muscular atrophy, and bulbar paralysis. Then follow those forms of paralysis characterised by tremor or ataxy—disseminated sclerosis, pseudo-sclerosis, paralysis agitans, and hereditary ataxia. Finally, functional paralysis is considered. These subjects would in themselves yield material for a large volume and consequently in this publication a description of them has to be rather condensed. The authors, however, have performed their task well and have given a vast amount of information in a comparatively small space.

Under the heading of Parasites Dr. W. T. Ritchie of Edinburgh contributes an article on Animal Parasites. He adopts the usual classification—protozoa, helminths, and arthropods—and for purposes of reference Dr. Ritchie's remarks will be found useful.

Dr. W. E. Fothergill of Manchester writes on the Anatomy of the Perineum and Pelvic Floor and Dr. F. W. N. Haultain on Diseases of the Peritoneum and Cellular Tissue of the Pelvis. The general description of the peritoneum is by Mrs. Garrett Anderson, Mr. H. P. Dean writing on Acute Peritonitis and Mr. D'Arcy Power on Tuberculous and other Affections of the Peritoneum.

Dr. J. A. Lindsay, professor of medicine, Queen's College, Belfast, describes the Medical Affections of the Pleura. He rightly speaks with caution on the pathology of diseases of the pleura and concludes that this part of the subject (especially the bacteriology) must be submitted to a rigid criticism and interpreted in the light of the facts of clinical experience before satisfactory conclusions can be arrived at. The Surgery of the Pleura is dealt with by Dr. T. Sinclair, professor of surgery, Queen's College, Belfast. The subject of Pneumonia is also divided into two sections, the bacteriology being considered by Dr. D. A. Welsh, pathologist to the Royal Infirmary, Edinburgh, and the clinical aspect of the disease being described by Sir J. W. Moore, Professor of Practice of Medicine, Royal College of Surgeons in Ireland. The remarks on treatment are worthy of careful attention.

The subject of Pregnancy is divided into four sections: (1) Changes in the Maternal Organism, by Dr. J. Lamond Lackie, gynæcological tutor, Royal Infirmary, Edinburgh; (2) Diagnosis of Pregnancy, by Dr. W. Fordyce, assistant physician, Royal Maternity Hospital, Edinburgh; (3) Multiple Pregnancy, by Dr. W. Stephenson, professor of midwifery, Aberdeen University; and (4) Management of Pregnancy, by Mrs. Chalmers Watson, M.D. Edin., senior assistant physician, Edinburgh Hospital for Women and Children.

There are many other contributions to this volume which add to its value but we have not space to comment on them. Suffice it to say that the standard of the publication is efficiently maintained, rendering the Encyclopædia a most useful work of reference.

A Laboratory Guide in Elementary Bacteriology. By WILLIAM DODGE FROST, M.S., Instructor in Bacteriology, University of Wisconsin. Second revised edition. Illustrated. Madison, Wis.: published by the Author. 1902. Pp. 355.

THIS work represents substantially the course of practical instruction given to the students of bacteriology at the University of Wisconsin. Its popularity is evidenced by the call for a second edition within a year of its first appearance, and the character of the instruction furnished by the book certainly justifies this appreciation. The course is divided into two parts, treating respectively of general and medical bacteriology. The latter is evidently not intended to stand by itself but it is assumed that the course of general bacteriology has been previously carefully studied. The instructions are divided into a series of short "exercises" in such a way as to make it comparatively easy to adapt the course to the varying requirements of different laboratories and different classes of students. There is some lack of courage, though less in this book than in many, in deciding whether the work is to stand alone as a complete laboratory guide or to be supplemented by demonstrations; consequently the instructions are in places too short for the first alternative and too long if the aid of a demonstrator is presupposed.

The general course begins with the study of morphology and elementary technique, passes on to the physiology of bacteria, then to a systematic study of representative non-pathogenic bacteria, and finally to the analysis of air, water, and milk and the action of antiseptics. The medical part of the course commences with the study of the principal pathogenic bacteria, followed by the methods of bacteriological diagnosis and the examination of water and milk for pathogenic germs. A characteristic feature of the book is the provision of a number of blank forms to be filled by the student with details of the morphological, cultural, chemical, and other characters

of the organisms studied. If conscientiously carried out the method should be of considerable educational value. In some details the instruction might be improved. The valuable "hanging-drop culture" is dismissed with insufficient details as to sterilisation and with no reference to any medium save agar. The dried drop method of collecting blood for Widal's reaction is alone described and the bacteriological diagnosis of cholera occupies only nine lines. In the differential diagnosis of bacillus diphtheriæ no mention is made of the acid production in glucose broth (Cobbett). There is a curious misprint of "military tuberculosis" (p. 326) and Professor Delépine's name is also transformed (p. 301). On page 36 a magnification of 2500 diameters is said to be represented thus: × 2000. These are, however, small blemishes in an otherwise excellent text-book which bears the impress of having been practically tested in the laboratory. A most excellent series of laboratory rules is prefixed.

Morphinism and Narcomanias from other Drugs. By T. D. CROTHERS, M.D., Superintendent of Walnut Lodge Hospital, Hartford, Conn., U.S.A., Editor of the *Journal of Inebriety*. London and Philadelphia: W. B. Saunders and Co. 1902. Pp. 351. Price 9*s.* net.

DR. CROTHERS has long been known for his work in connexion with the nervous and mental affections associated with alcoholic and other drug habits, and as medical superintendent for many years of an institution devoted to the care and treatment of patients suffering from such affections in the United States his experience has been large and varied. The present work is really a general preliminary survey of the subject of morphinism and of the nervous and mental troubles arising from drug habits generally. All modern writers, says Dr. Crothers, recognise the growth of these habits and vices, and it is stated that in the United States the sale of morphine in some large cities indicates that not one-half of the amount sold is traceable to the legitimate demands of physicians and hospitals. Dr. Crothers quotes statistics and figures from a great variety of sources to show that the morphia habit is becoming largely prevalent among medical men in France, Germany, and the United States. The first 220 pages of the book are devoted to an excellent account of the various causes, symptoms, and stages of morphinism, the discussion being throughout illuminated by an abundance of facts of clinical, psychological, and social interest. The complication of this vice with other drug habits is lucidly sketched and a concise description is given of the treatment adopted at asylums and retreats for the reception and treatment of patients thus affected. The medico-legal aspects of morphinomania in regard to criminality, responsibility, and competence to give evidence in a court of law are discussed and sound canons are laid down for the guidance of the physician in reference to such matters. Other forms of drug habits are then taken up and dealt with *seriatim*—viz., cocainism, chloralism, chloroformism, tobacco inebriety, etherism, the sulphonal and trional habit, and the consumption of "tinctures" such as those of lavender, Jamaica ginger, and the like, which are largely composed of crude forms of spirits. The book is written throughout in an easy and somewhat popular style, and appeals to the general reader as well as to those specially interested in the subject as regards its medical and sociological aspects.

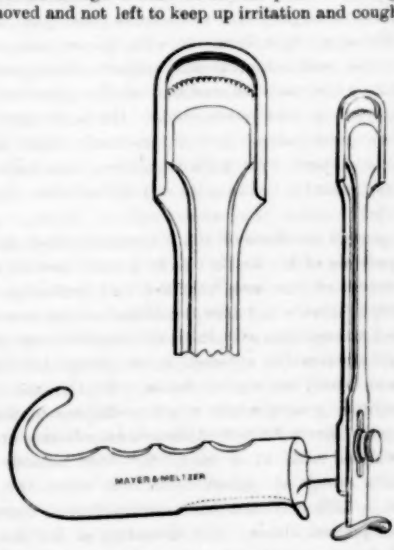
JOURNALS AND MAGAZINES.

The Medical Magazine.—"The Inebriate Acts, 1879–98, in their Relation to Inebriety" is the title of a paper by Dr. Edward Norton which comprises the chief interest of the current number of this journal. Dr. Norton shows that although the number of persons seeking treatment in institutions is still far smaller than is desirable considering the number to whom such treatment is really applicable, yet there has been for 20 years a steadily maintained increase in the number of applicants. He is of opinion that good industrial retreats for destitute inebriates, scattered throughout the country and supported by the results of the patients' own labours, by local authorities, and by voluntary aid, are within the range of practical politics. We agree.

New Inventions.

THE ANATOMICAL TONSILLOTOME.

THE orifice for the reception of the tonsil in this instrument is made to correspond to it in shape, being oval with the long axis vertical. By this means the hypertrophied tonsil can be much more completely excised and not merely clipped as is usual with the tonsillotomes most employed. Another advantage is that the lowest point of enlargement is removed and not left to keep up irritation and cough, as is



commonly seen when the oval tonsil is squeezed into a round or horizontally elongated orifice. The second modification consists in the serration of the blade. This has a marked effect in lessening hæmorrhage, especially in adults, as the tonsil is lacerated rather than sharply incised. The third new feature is that the handle is not only massive, having indentations for the fingers and thumb affording greater grasping surface and power, but that it is prolonged into a hook at the end. The advantage of this is that the operator by utilising the ulnar side of the hand has much increased power for levering outwards and thus pressing well over the tonsillar base just before driving the blade home. For the excision of large flat adult tonsils these modifications are invaluable and render this instrument a safe and efficient substitute for the slow, clumsy, and imperfect methods of the écraseur, *morcellement*, and enucleation.

Welbeck-street, W. WM. STUART-LOW, F.R.C.S. Eng.

ROYAL ALBERT HOSPITAL, DEVONPORT.—A very successful fête was held on June 26th, 27th, and 29th at the Exhibition grounds, Devonport, in aid of the funds of the Royal Albert Hospital. To maintain this institution about £4000 are needed annually, but unfortunately the annual excess of expenditure over receipts is about £1300 and the fête has been organised with the object of meeting this deficit.

THE LANCET.

LONDON: SATURDAY, JULY 5, 1902.

The Illness of the King.

WE are exceedingly glad to be able to state that His Majesty the KING is progressing well. It has been necessary to remove the drainage-tubes as they could not be tolerated and gauze plugs are now used instead. The wound is granulating satisfactorily and the discharge has diminished and is perfectly inodorous. The KING suffers less, and although the dressings are still necessarily painful His Majesty bears the process with the utmost courage. His temperature has been normal since Thursday, June 26th. It will, we are sure, afford the greatest satisfaction to his subjects throughout the Empire to know that the condition of the constitution of the illustrious patient is admirable. He is, moreover, an extremely good patient and is absolutely loyal to his medical attendants. All these things, we hope, bode well for his restoration to health at no very distant date.

THE present condition of His Majesty the KING and the future progress of his health can be gauged best by a full consideration of the case from the very beginning. Our readers will be able to follow the thread of our remarks if they read in connexion with them the brief account of His Majesty's illness which appeared in our second edition last week and which we reprint below. Firstly, was there any condition present which might predispose to the development of perityphlitis? Although no reference appears to have been made to it it is far from unlikely that the severe attack of typhoid fever from which the KING suffered in 1871 may have had some etiological connexion with his present illness. The ulceration of the bowel in typhoid fever is especially severe near the ileo-cæcal valve and adhesions occurring as a result of the intestinal ulceration, especially when the attack has been prolonged, are not uncommon. Adhesions of this nature are liable to produce displacement and torsion in the neighbourhood of the cæcum, and it is now recognised that in this way the circulation may be distinctly interfered with, and that such disturbances of position and circulation are important predisposing causes in the production of perityphlitis. So that it is quite possible that the attack of enteric fever from which the KING suffered more than 30 years ago may be really connected with the illness from which he is suffering now.

The present attack appears to date from some 10 days earlier than the operation. For it was on June 14th that the KING first complained of abdominal discomfort, but it was slight and did not interfere with the journey to Aldershot. At midnight of the same day abdominal pain came on, and Sir FRANCIS LAKING was summoned and was able to relieve the urgency of the symptoms; and on the next day, June 15th, His Majesty was seen by Sir THOMAS BARLOW. Up to this time the signs and symptoms were indefinite, and though they were sufficient to suggest the possibility of perityphlitis, no trustworthy diagnosis could be made. On the afternoon of the 15th a chilly fit occurred; this was in all probability a real rigor and marks the time at which from the after-history of the case we may conclude that suppuration commenced. We may interpret these symptoms by the light of our later knowledge as follows: the commencement of the perityphlitis dates from the first abdominal discomfort of which the KING complained on Saturday, June 14th. It may have been connected with the great fatigue of the previous day and the taking of a late supper; but it is quite possible that neither had anything to do with it. During Saturday and Sunday the inflammation extended and set up an adhesive peritonitis. To this was doubtless due most of the pain of which the KING complained. Then pus began to form around the cæcum. This suppuration was localised by the adhesions which had already formed between the adjoining coils of intestine, and if our suggestion be correct as to the influence of the attack of typhoid fever old adhesions remaining from that illness may have assisted in confining the suppurative process. By Monday, June 16th, the KING had recovered sufficiently to bear well the drive to Windsor, for he arrived there without fatigue. On the Tuesday signs began to appear which rendered certain the nature of the affection, and when he was seen on Wednesday, June 18th, the local manifestations were well marked. In the right iliac fossa there was an ill-defined, somewhat firm swelling, with distinct tenderness but no very marked pain independently of pressure. The temperature was raised and the diagnosis could be made with ease and certainty. Then would arise the question of operation. There are some in this country, and still more abroad, who advocate operative measures at the earliest possible moment, but by indiscriminate operation in all cases without regard to the exact nature of the local condition the best results are not obtained. It cannot be disputed that a large number of cases of perityphlitis recover without surgical aid and that many others result in the formation of a localised abscess which may be evacuated without necessarily disturbing the cæcum, without indeed it ever being established that inflammation in its vicinity was the cause of the trouble. The great danger in perityphlitis is general septic peritonitis. What may be called the "natural" method of prevention of this complication is by the formation of peritoneal adhesions, shutting off the focus of infection from the rest of the peritoneal cavity. To attempt to disturb the cæcum while this process of localisation of the suppuration is going on can only lead to the hastening of the evil which it is desired to avert, for the breaking down of the protective adhesions will almost certainly cause the generalisation of the peritoneal infection. There is the less need to discuss the question of the superiority of early or late operation seeing that we have no proof in the KING'S case that the appendix was inflamed, but we may be permitted to express our complete approval of the course adopted by His Majesty's medical advisers.

With complete rest on Thursday, Friday, and Saturday the

KING'S condition improved, the temperature fell to normal, and he felt better in himself, and the improvement continued during the Sunday, so that on Monday His Majesty was able to journey to London by train. Up to Monday, June 23rd, it had been hoped that care and rest had served the patient so well that the necessity for active surgical treatment had passed away. This was only in accord with the earnest wish of the KING who was extremely anxious to carry out at whatever pain to himself the arrangements that had been made. On Monday, however, the probability of the presence of pus in the right iliac fossa was suspected and on the morning of Tuesday, June 24th, it became clear that suppuration had occurred. The iliac swelling was again obvious, the pain had increased, and the temperature was once more elevated. All these signs pointed clearly to the formation of a localised abscess. The danger of delay was great. The formation of pus was evidently proceeding rapidly and the abscess was extending. In such circumstances the impossibility of sanctioning any attempt at carrying out the Coronation ceremony was at once obvious. Nay, more, the necessity for the immediate evacuation of the pus was urgent, for if no outlet for it were provided the far greater danger of general septic peritonitis was imminent, a condition in which surgical interference is too often of small avail. Lord LISTER and Sir THOMAS SMITH agreed that an operation was imperative and the KING gave his assent reluctantly, not because of the pain or the risk to himself, but because he knew the severe disappointment the change of plan would occasion to the many thousands who were assembling in honour of his Coronation.

To Sir FREDERICK TREVES was committed the heavy responsibility of performing the operation. An incision was made a short distance above Poupart's ligament on the right side; the wound was steadily deepened, but it was not until it had obtained a depth of some four and a half inches that pus was reached. This was evacuated and the abscess cavity was drained by means of two rubber tubes. By the evacuation of the pus and the subsequent drainage the immediate risk of the involvement of the general peritoneal cavity was averted and thus the danger of the disease was greatly reduced. The effects of the operation soon showed themselves. The pain from which the patient had suffered severely was markedly relieved, the temperature rapidly fell, and it was evident that the septic absorption had ceased. It was possible for his medical attendants to announce on the same evening that the KING'S condition was as good as could be expected after so serious an operation, that his strength was well maintained, and that the pain had diminished. There was an addendum to the effect that it would be some days before it could be said that the KING was out of danger; this was a necessary warning to the public, for it may happen that the extension of the suppurative process does not cease with the evacuation of the pus.

During the earlier part of the first night after the operation His Majesty was restless and did not sleep, but after one o'clock some sleep was obtained. A fairly comfortable day followed and but little pain was experienced except at the dressing of the wound. His strength was fairly well maintained. On the second night he had some refreshing sleep and he improved in all respects, and the state of the wound continued satisfactory. On Friday, June 27th, it was announced that a fair night had been passed and that the temperature remained normal. On Sunday, the fifth day after the operation, the KING was sufficiently recovered to permit his being moved on to a couch for a few hours, and up to the time of writing the improvement has steadily continued. A fair amount of sleep is obtained, the KING'S strength increases and the wound continues to progress in a satisfactory manner. It is, of course, most important that the abscess cavity should close completely and from the bottom, otherwise an intractable sinus would be not unlikely to result. The wound is therefore packed with gauze and this necessarily occasions no small amount of pain. This is unfortunate but cannot be avoided and it is consoling to remember that the pain will decrease with each dressing.

We have followed the illustrious patient's progress from the commencement of his illness to the present time and we are now in a position to consider the prognosis. The dangers which may arise may proceed from the patient's constitution or be connected with the local lesion. As to the KING'S general constitution there is but little cause for anxiety. At his age, 61 years, he is probably as strong as the average of his subjects, and, apart from the harassing nature of his duties and the energy and zeal with which he has ever undertaken all that he is called upon to do, there has been nothing materially to impair his general health. The severe attack of typhoid fever in 1871, to which we have already alluded, served for a time to weaken him, but the effect was transient. It cannot, however, be doubted that the grave disappointment which the KING feels at having to postpone the Coronation may exert some depressing effect on him. To dispel as far as possible any untoward mental or sentimental condition must be the best endeavour of those around his bedside. Turning to the local conditions we find several possibilities of harm. The wall of the abscess cavity is formed by coils of small intestine which have become adherent owing to adhesive peritonitis; some of these adhesions have probably already commenced to organise. Somewhere in this wall there may be a peccant appendix, matted to the intestine by exuded lymph; from it and from the other parts of the wall of the abscess cavity pus may be still secreted. The chief danger is the extension of the suppurative process to the general peritoneal cavity, but day by day the adhesions localising the mischief are growing stronger, organisation proceeds rapidly, and before long they will be strong enough to resist any strain to which they may be subjected. The danger from this cause has steadily grown less and less with every favourable bulletin. Again, the risk of the absorption of septic products from the abscess cavity is now very small, as all tension has been removed and the granulations which have formed offer an effective resistance to the passage of the toxins into the blood-vessels and lymphatics; at any rate, the state of the temperature shows that now no absorption is taking place. The chance of the occurrence of general septicæmia may be disregarded. On a critical review of the situation of the KING it may be said that there is great promise of a speedy and safe recovery from his illness; speedy, we say, though many

weeks must elapse before he is well, for we must bear in mind the severity of the illness and of the operation performed for its relief; and safe because the probability of any complication supervening is remote. On the maintenance of his strength, apart from care in dressing the wound, depends mainly the recovery of His Majesty.

One further point requires consideration. If, as we may not unreasonably hope and expect, the KING recovers from his illness, will a recurrence be likely or will it ever be necessary to interfere with the appendix? The answer which would be given by those surgeons who have had most experience in abdominal surgery would surely be "No." When an abscess has developed in connexion with the appendix and has been successfully drained it is rare, indeed, for any recrudescence of mischief or for any further operation to be required.

THE following account of His Majesty's illness appeared in the second edition of THE LANCET, published on Wednesday, June 25th:—

We were able to state yesterday, June 24th, that an abdominal operation had been successfully performed on His Majesty by Sir FREDERICK TREVES on that morning. The anæsthetic was administered by Dr. FREDERIC HEWITT and was borne well, His Majesty recovering consciousness without any ill-effects whatever. The operation was attended by no complications; a large abscess was found and evacuated. To-day, June 25th, we are able to give the following account of his illness.

We give this account of His Majesty's illness and purposely do so in the briefest and plainest terms, because we know that although our statement will primarily be read by our medical readers it is certain to reach the public, and it seems to us at the present juncture that it is highly important that the public should know the real state of the case. We may preface our remarks by saying that while it is impossible to disguise the serious nature of the KING'S condition it is also our joyful privilege to be able to contradict flatly some of the sinister rumours that during the last 48 hours have been prevalent throughout the world.

On Friday, June 13th, His Majesty the KING towards the evening was suffering from great fatigue. After attending the Court and the many arduous duties of the day, he had a late supper and went to bed, and on the following morning, Saturday, June 14th, he complained of abdominal discomfort. His Majesty was seen during the day by Sir FRANCIS LAKING, Physician-in-Ordinary to the KING and Apothecary to the Household. In the afternoon he was distinctly better. He then left for Aldershot where he dined with the QUEEN, being present in the evening at a "tattoo" held under unfortunate atmospheric conditions. On Saturday at midnight he complained of abdominal pain and a feeling of distension. Sir FRANCIS LAKING was sent for and arrived at Aldershot at a quarter to five in the morning. Remedies were administered and the symptoms were all relieved. It may be added that no morphia was given. But Sir FRANCIS LAKING, recognising the presence of an abdominal trouble that might be serious, telegraphed for Sir THOMAS BARLOW, Physician to the Household, who arrived on Sunday, the 15th, and stayed there during the day. On the afternoon of Sunday His Majesty had a chilly fit which in all probability amounted to a rigor. On the following day, Monday, the 16th, he proceeded in a carriage to Windsor, adopting this method of travelling by his physicians' advice, for it was felt by his medical advisers that if, unfortunately, his symptoms should develop for the worse it would be much better that he should be in his own home. The journey was made in comfortable circumstances, he bore it well, and felt better at the end of it. On Tuesday, the 17th, recognising that, in view of the approaching Coronation, no physical labour which could possibly be avoided should be undertaken, His Majesty reluctantly abandoned the idea of being present at Ascot. He remained recumbent most of the day but drove for three-quarters of an hour in the private grounds attached to the Castle.

On Wednesday, the 18th, His Majesty was seen by Sir FREDERICK TREVES, and this point in the clinical history of his disease is one of the highest interest to medical men. The temperature was then elevated, there were swelling and tenderness in the right iliac fossa—in short, there were symptoms of perityphlitis. But during the following Thursday and Friday all these ominous symptoms disappeared. When Sir FREDERICK TREVES saw His Majesty on Saturday, the 21st, his temperature had fallen and had been normal for two and a half days, the swelling in the iliac region had nearly vanished, and in every way the KING was much better. It was then believed that the KING was on the road to rapid recovery, and that he would be able to go through the Coronation ceremonies. Sunday, the 22nd, was uneventful, and on Monday, the 23rd, the KING travelled from Windsor to London, his entrance to the capital being received by the public as a proof that they need attach no credence to any of the many alarming rumours that had now become widespread. The KING made the journey by railway. On his arrival the KING saw Sir FREDERICK TREVES again and at this period His Majesty's medical and surgical advisers began to be suspicious that there might be pus in the right iliac region.

Next day the necessity for operation became clear. At 10 o'clock on Tuesday morning the urgency of an operation was explained to His Majesty, and recognising that his ardent hope that the Coronation arrangements would not be upset must be disappointed he cheerfully resigned himself to the inevitable. Before the actual decision upon operation was arrived at Sir FREDERICK TREVES, Serjeant-Surgeon to the KING, took the advice of the two other Serjeant-Surgeons, Lord LISTER and Sir THOMAS SMITH, and they, as well as Sir THOMAS BARLOW and Sir FRANCIS LAKING, came to the unanimous conclusion that no course but operation was possible in all the circumstances. To delay would, in fact, be to allow His Majesty to risk his life. At 12.30 on Tuesday, the 24th, the operation was performed by Sir FREDERICK TREVES, and concerning this there is very little to add to what we have already said. The KING was placed under an anæsthetic by Dr. FREDERIC HEWITT, anæsthetist to His Majesty, an incision was made by Sir FREDERICK TREVES in the usual place, and a large abscess was opened. The

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incision was four and a half inches deep and some decomposed pus was evacuated. The cavity was drained by two tubes of large calibre and packed with iodoform gauze.

Such is the brief clinical history of His Majesty's illness and only one or two comments are necessary from us to enable the public to understand the position. It will be seen that the story makes the bulletins completely clear, and shows them to be exactly accurate. The idea that some dreadful news is being kept back ought, we think, to be dispelled.

Firstly, the KING in his illness has throughout been advised by his proper medical attendants. When Sir FRANCIS LAKING, Apothecary to the Household and Physician in Ordinary to the KING, desired a consultation, Sir THOMAS BARLOW, Physician to the Household, was sent for. When a surgical opinion was necessary in view of unfortunate developments Sir FREDERICK TREVES, Serjeant-Surgeon to His Majesty, was called in to consultation. When he and the two physicians recognised the urgency of His Majesty's symptoms the two other Serjeant-Surgeons to the KING, Lord LISTER and Sir THOMAS SMITH, were summoned to express an opinion before the last critical step was taken.

The second point to which we would call attention is the absolute sincerity of every bulletin that has been issued, for this sincerity, it seems to us, should prevent the public from giving heed to the wild rumours now rife. His Majesty is suffering from perityphlitis and nothing else. It is an unfortunate fact with regard to perityphlitis, as all our readers know, that the symptoms may for various reasons be entirely masked. This it was that absolutely prevented the necessity for operation being apparent until the Tuesday before the Coronation.

There was no symptom of malignancy present.

The Daily Press and the Illness of the King.

THE news of His Majesty's illness naturally created widespread interest and the daily press in its anxiety to give readers every information discharged its duties to its readers with accuracy on the whole. Especially was this the case where the clear and adequate bulletins were carefully followed, mastered, and used as texts for exposition. Still, a few extraordinary statements require a word or two of comment from us. Nearly all the papers, apparently on the authority of the Press Association, stated that "the trouble took the form of an intestinal abscess, the growth of which blocked the natural channel. ..... The obstruction having been excised, a system of tubing was resorted to to make the intestine available for its natural functions." The confusion here expressed between a drainage-tube and a Murphy's button is perhaps natural in a layman's mind, and the information upon which the paragraph was founded could only have come from an ignorant person. But the result of the publication of this paragraph was to give a very sinister complexion to the KING'S illness, for an excision of a portion of the intestine was clearly implied. Our simultaneous statement that the operation was attended by no complications served, we have been informed, to modify that impression. More than one paper waxed learned about the stitching up of the wound, attaching importance to the day or hour when the stitches would be removed and basing prophecy thereon; the would-be medical writers not seeing that, of course, the wound was not closed, the exact medical description of the dressings employed conveying nothing to them. In the *Westminster Gazette* "an eminent surgical authority" fell into this obvious blunder and caused this carefully-edited evening paper to mislead its many readers in a mischievous way. We do not think that Mr. HARRISON CRIPPS will approve of the manner in which the *Westminster Gazette* quoted his book in support of a treatment which has not been and could not be followed. The most amazing error, however, appeared in the *Daily News* of June 25th. It purported to be "a medical practitioner's view" and began as follows:—

> "Perityphlitis," said our professional informant, "is inflammation of the tissues surrounding the kidney—round about the kidney in contradistinction to inflammation of the kidneys—and it is extremely difficult to say till the operation has taken place whether the case is perityphlitis or is inflammation of the kidney itself."

Then followed a hopelessly tangled and muddled set of statements concerning an operation for calculus of the kidney. While publishing this statement upon the authority of "a member of the medical profession of high standing," the *Daily News* seems to have felt that there was something wrong and so a second medical man was applied to. This gentleman was not quite so much at sea as the first one, for he did associate perityphlitis with the intestine and not with the kidney, but when he went into details he lost himself. It is difficult to believe that the rubbish published by the *Daily News* was written by a medical man and we simply cannot understand how it came to be published. One paper, our excellent contemporary the *World*, has earned an official contradiction that has not been granted to less important periodicals. A highly ludicrous picture of the operation given in its columns on Wednesday last, July 2nd, has been pilloried as "entirely inaccurate," and again it is impossible to understand how such a description could have been published in the face of the bulletins and the statements in our columns and those of the *British Medical Journal*.

The Coronation Honours.

THE Coronation honours which were made public on Thursday, the day appointed for the ceremony so unavoidably postponed, are of particular interest to medical readers. This is so not only because of the large number of our profession whose services have been found worthy of recognition on the occasion which was intended to be the official commencement of the reign of King EDWARD VII., but because the general design of the Crown, and of the advisers of the Crown, appears to have been to do ample justice to workers in the cause of humanity at large. The honours have been distributed in accordance with a broad and generous conception of the character of the labour that has been for the good of the generation and not exclusively as rewards for party or administrative zeal. This fact is well displayed by the new Order which His Majesty has been pleased to institute—viz., the Order of Merit and to which the following appointments have been made:—Field-Marshal Earl ROBERTS of KANDAHAR, K.G., K.P., V.C., Field-Marshal

Viscount WOLSELEY, K.P., G.C.B., General Viscount KITCHENER of KHARTOUM, G.C.B., G.C.M.G., Lord RAYLEIGH, F.R.S., Lord KELVIN, G.C.V.O., F.R.S., Lord LISTER, F.R.S., Admiral of the Fleet the Honourable Sir HENRY KEPPEL, G.C.B., the Right Honourable JOHN MORLEY, M.P., the Right Honourable W. E. H. LECKY, M.P., Admiral Sir EDWARD HOBART SEYMOUR, G.C.B., Sir WILLIAM HUGGINS, K.C.B., P.R.S., and GEORGE FREDERICK WATTS, R.A. All our readers will rejoice to find among the 12 men first selected for the new honour Lord LISTER, Lord KELVIN, Sir WILLIAM HUGGINS, and Lord RAYLEIGH, for it is deeply gratifying to men of a scientific profession to find three Presidents of the Royal Society and a fourth who is an inevitable holder of that post in so select a list—a list obviously intended to classify those mentioned as the very salt of His Majesty's subjects. The work done by this small band of men is so historic in its character that it needs no particularising from us, but we may be permitted to offer our special congratulations to Lord LISTER, the father of modern surgery. Lord LISTER has also been made a member of the Privy Council—a distinction which we believe has never been previously conferred upon any medical man save the late Professor HUXLEY.

The KING has been pleased to confer baronetcies upon two members of the medical profession—Sir FRANCIS LAKING, K.C.V.O., Physician in Ordinary to His Majesty, and Sir FREDERICK TREVES, K.C.V.O., C.B., Honorary Serjeant-Surgeon to His Majesty. The position these two gentlemen occupy now at His Majesty's bedside invests their honours with interest. The whole list of knighthoods is not a very large one taking all the circumstances into consideration so that the number of medical men selected for this distinction is in proportion a goodly one. His Majesty has been pleased to confer the honour of knighthood upon: Dr. W. J. COLLINS, an ex-chairman of the London County Council, a Radical of the advanced school, and an able surgeon; Mr. ALFRED COOPER, a member of the Council of the Royal College of Surgeons of England; Dr. J. HALLIDAY CROOM, President of the Royal College of Surgeons of Edinburgh; Dr. THOMAS R. FRASER, F.R.S., President of the Royal College of Physicians of Edinburgh, whose work in connexion with the Indian Plague Commission and with the poison of serpents has made his name justly prominent; Mr. VICTOR HORSLEY, F.R.S., whose neurological labours rather than his medico-political labours are probably being rewarded, but who has striven for the good of his professional colleagues with a courage and vigour that will lead them all to rejoice in his knighthood; Mr. H. G. HOWSE, President of the Royal College of Surgeons of England and Senior Surgeon to Guy's Hospital; Mr. HENRY BELL LONGHURST, Honorary Surgeon-Dentist to His Majesty; Professor WILLIAM MACEWEN, F.R.S., Regius Professor of Surgery in the University of Glasgow, and a pioneer in the modern surgery of the brain and spinal cord; Dr. THOMAS MYLES, the President of the Royal College of Surgeons in Ireland; Dr. ISAMBARD OWEN, Senior Deputy Chancellor of the University of Wales, who is also physician to, and the urbane and energetic Dean of, St. George's Hospital; and Professor WILLIAM WHITLA of Belfast, the brilliant pharmacologist, the generous donor of the medical institute to the Ulster Medical Society, and, we believe, the first Belfast medical man to receive a title. Another medical man, Dr. CONAN DOYLE, the well-known author, has been knighted, the honour coming as a testimony to the value of his national services in chronicling the story of the great war now so happily closed and in correcting foreign misstatements and misapprehensions concerning the British attitude before, and conduct during, martial operations. We also have to congratulate on the occasion of their knighthood Professor OLIVER LODGE, F.R.S., the Principal of the Birmingham University; Professor ARTHUR RÜCKER, F.R.S., the Principal of the University of London; Mr. W. J. SOULSBY, C.B., C.I.E., secretary now, as on many previous occasions, to the Lord Mayor of London and a tireless worker in many charitable causes; and Mr. CHARLES WYNDHAM, the popular and admirable actor who, more than 30 years ago, before adopting his present calling, was a member of our profession, obtaining a medical degree and serving in a medical capacity in the American civil war.

In divisions of the different Orders the names of many medical men will be found. Sir WILLIAM CHURCH, Bart., President of the Royal College of Physicians of London, has been appointed a Knight Commander of the Bath (Civil Division), while in the Military Division of the same Order will be found the names of Inspector-General of Hospitals and Fleets J. D. MACDONALD, R.N.; Professor WILLIAM RAMSAY, the eminent chemist; Surgeon-General ANNESLEY C. C. DE RENZY, I.M.S. (retired); Surgeon-General (ranking as Lieutenant-General) WILLIAM TAYLOR, Director-General of the Army Medical Service; and Surgeon-General JOHN A. WOOLFRYES, C.M.G. Among the new Companions of the Bath (Civil Division) will be found the names of Major RONALD ROSS, F.R.S., I.M.S. (retired), who has worked day and night that some of the malarious possessions of the Crown may benefit by the discoveries, in which he himself played no small part, as to the etiology of malaria; of Dr. B. ARTHUR WHITELEGGE, His Majesty's Chief Inspector of Factories, whose official and medical work have alike brought him credit; of Dr. DUNCAN HILSTON and Dr. ROBERT GRANT, who both hold the rank of inspector-general of hospitals and fleets; of Lieutenant-Colonel Sir JAMES R. A. CLARK, Medical Staff Corps, the eldest son of the late Sir ANDREW CLARK; and of Lieutenant-Colonel G. T. BEATSON, Medical Staff Corps. Two medical men are made Companions of the Bath (military division)—viz.: Fleet-Surgeon JAMES PORTER and Lieutenant-Colonel PATRICK F. O'CONNOR, I.M.S. Two medical men have been appointed Knights Commanders of the Order of St. Michael and St. George—viz.: the Hon. Dr. FREDERICK W. BORDEN, Minister of Militia and Defence of the Dominion of Canada, and Surgeon-General H. H. PINCHING, head of the Sanitary Department at Cairo. Dr. HO KAI has been appointed a Companion of this Order. The KING has granted the Kaisar-I-Hind medal for public service in India to the following gentlemen among others: Captain T. W. A. FULLERTON, I.M.S.; Lieutenant-Colonel JOHN LEOPOLD POYNDER, I.M.S.; and Mr. EDGAR THURSTON, L.R.C.P., superintendent Government Central Museum, Madras. A list of naval and military honours, so far as they affect the medical departments, will be found

in the columns of this issue of THE LANCET under the heading of "The Services"; and this list completes a total of distinctions received by our profession that is gratifying to contemplate.

Annotations.

"Ne quid nimis."

THE IMPERIAL VACCINATION LEAGUE.

VACCINATION is a procedure of undoubted value. But proportionately to its value it has aroused bitter opposition, and although for the most part its detractors are men and women of no intellectual calibre who are moreover absolutely ignorant of pathology, yet on the well-known principle that if enough mud is thrown some of it will stick the fact remains that vaccination is unwelcome to a large number of persons. The Jenner Society has done, and is doing, excellent work but its provincial position in some ways hinders its usefulness. The Imperial Vaccination League which has been developed from the league started last year by Mr. John Carrington will work in alliance with the Jenner Society which will remain to carry on its good work in Gloucester and to keep Jenner's memory green in that city and its neighbourhood. The Imperial League, which was formally constituted on June 30th, has for its president the Duke of Fife. The treasurer is Lord Avebury and among the vice-presidents are the Archbishop of Canterbury, the Bishops of London, Rochester, and Stepney, Cardinal Vaughan, the Chief Rabbi, Sir W. Broadbent, Sir James Crichton-Browne, Mr. Jonathan Hutchinson, and Mr. Claude Montefiore. The provisional committee consists of Dr. J. C. Thresh, Dr. J. G. Glover, Dr. T. D. Acland, Dr. Dudfield, Mr. R. Brudenell Carter, Dr. E. Garrett Anderson, the Revd. H. L. Paget, Mr. John Carrington, and Mr. Greenwood. The league will at present aim at collecting opinions as to what amendments of the Vaccination Act of 1898 may be urged upon the Government when the time comes for dealing with the subject, and among the most important points for consideration the promoters of the league include:—

(*a*) Whether revaccination at school age should be made obligatory.
(*b*) Whether the administration of the vaccination law should be transferred from the Poor-law authorities to the hands of the sanitary authorities.
(*c*) As to the need for the establishment of thoroughly well-equipped laboratories for the preparation of a supply of glycerinated calf lymph adequate to meet all ordinary demands; and for the systematic inspection of all establishments where lymph is prepared in this country.
(*d*) As to securing a legal definition of what constitutes "efficient" vaccination, and as to requiring all certificates of vaccination to state if the vaccination has been "efficient" or not.

The league will assist all persons who have the opportunity to make known by means of leaflets, lectures, meetings, and the like, the necessity for, and the value of, vaccination and revaccination. This and other work will, of course, cost money. Members of the league promise at least 5*s.* annually, while associates give not less than 2*s.* 6*d.* Cheques and postal orders may be sent to the secretary, Dr. Edward J. Edwardes, at the offices of the league, 53, Berners-street, London, W. The bankers are Messrs. Robarts, Lubbock, and Co., 15, Lombard-street, E.C. We cordially welcome the league, for there is plenty of work for it as well as for the Jenner Society. Only by steady work and constant pressure upon Parliament can the libels and misstatements of the baser sort of anti-vaccinationist be overcome.

THE DISTRIBUTION OF PLAGUE.

THE weekly return of the Director-General of the Sanitary Department of Egypt shows that for the week ending June 22nd there were 5 new cases of plague admitted, all of them occurring in natives. The deaths numbered 2, the recoveries 14, and 13 cases remained under treatment. A telegram from the officer administering the Government of Hong-Kong received at the Colonial Office on June 24th states that for the week ending June 21st there were 49 fresh cases of bubonic plague and 51 deaths.

THE KING'S TUESDAYS.

THE principal events in the life of His Majesty King Edward VII. have happened on a Tuesday—viz., on Tuesday, Nov. 9th, 1841, His Majesty was born; on Tuesday, Jan. 25th, 1842, he was baptised; on Tuesday, March 10th, 1863, he was married; on Tuesday, Dec. 8th, 1863, he was appointed a member of the Privy Council; on Tuesday, Nov. 21st, 1871, it was definitely ascertained that he had contracted typhoid fever; on Tuesday, Feb. 27th, 1872, he attended the Public Thanksgiving Service for his recovery; on Tuesday, Jan. 22nd, 1901, he succeeded to the throne; on Tuesday, Jan. 29th, 1901, the Royal Standard was hoisted at Marlborough House for the first time; and on Tuesday, June 24th, 1902, His Majesty underwent an operation for perityphlitis. As an exception to the above-mentioned cases it may be stated that it was on a Monday (July 16th, 1898) that the King sustained a fracture of the left patella through missing his footing while descending the spiral staircase at Waddesdon Manor during a visit to the late Baron Ferdinand de Rothschild.

DISABILITIES OF THE POETIC TEMPERAMENT.

IT has been said that "every good physician is a poet," and, like most aphorisms, the saying combines a modicum of truth with a large leavening of mistaken notion. The idea that the author of this remark wished to convey was the perfectly correct one that something of the ready sympathy and something of the emotional susceptibility which belongs to the poet must be present in the character of any man who is to be highly successful in medically understanding and treating his fellow-creatures. The practice of medicine, an art which deals with the minds and bodies of human beings, let it be founded to however great an extent upon exact science, cannot be, and never will be, successfully pursued by the kind of man who is called "hard." A hard, rugged exterior is the familiar apparel of the medical practitioner of a certain class of novel. The writers of such books are careful, though, to let it be seen that this forbidding appearance and this harsh manner conceal an unusual softness of heart, and in doing so they are not merely being just to the medical profession but they are acting in accordance with a recognised and correct opinion—to wit, that a "doctor" must be kind. So far, then, our claimant for poetic attributes in the physician is justified. There is, however, a great deal on the other side of the question that he overlooks. That very sympathy which is the essence of the poetic temperament is a dangerous asset to the practitioner of medicine. At least, if it is essential to the perfection of his character as a physician it must be kept sternly under control in a manner that would ruin its favourable influence upon a poetic output. With the poet everything that appeals to his sympathy, everything that touches the strings of his heart, should move them to a musical note. When the poet feels he expresses his feeling and the expression is poetry. He has been described as a man who expresses what other people only feel. With the physician, on the other hand, a prime duty is often not only not to express but even carefully to hide his real feeling. When he realises the gravity or the hopelessness of a case is he to weep at the bedside? That would be the poetic attribute to the situation, it is scarcely that of the true medical man. In another way, too, the

poetic temperament has disabilities tending to encumber the physician. The poet's qualities are in constant strife with reticence. The physician, it has been well said, must have not only sense but reticence. Confidence in the inviolability of confidences is an essential element of a patient's trust in his medical man. Stern must be the control which the poetic physician exercises over his natural tendencies, for reticence and the poetic temperament are natural foes. The matter-of-fact man may lay this balm to his soul, that if he cannot be a great physician at least he is much more easily a harmless one than his fellow with the great possibilities—and great disabilities—that accompany the poetic temperament.

THE BOARD OF TRADE AND THE ELECTRICAL ENGINEERS.

ON June 18th a deputation from the Institute of Electrical Engineers was received by Mr. Gerald Balfour, President of the Board of Trade. The deputation, which included amongst its number Lord Kelvin and Sir Michael Foster, urged that something should be done to remove impediments which they stated stood in the way of the industrial development of electricity. One of their chief grievances appeared to be the fact that local authorities possess the power to oppose, and do often actively oppose, electrical enterprises which they, rightly or wrongly, think would be disadvantageous to the people who live in the districts which they represent, and the further fact that Parliament frequently listens to the expression of opinion given by local bodies concerning local interests. Mr. Gerald Balfour pointed out that the number of vested interests existing in an old country is necessarily greater than that in a newly-populated one and that for that reason the rapid developments possible in a sparsely populated area cannot take place in London. The President of the Board of Trade was unable to promise that there was any prospect of immediate legislation which would facilitate the extension of the industrial application of electricity. A delay in this question is not altogether a matter for regret. At the present time the risk to life to which those engaged in the application of electricity to trade purposes are exposed has not received sufficient attention. A committee appointed by the Home Office recommended that a number of regulations should be made for the protection of those engaged in the work and the regulations advised were made chiefly on the opinion of Professor C. V. Boys and of other well-known electricians. Since the report of the committee was published experience has proved that exposure to a current of electricity is a source of greater danger than some professional electricians supposed. Mr. Hamilton P. Smith, in his chapter on "Electric Generating Works," which forms part of the book edited by Dr. Thomas Oliver on "Dangerous Trades,"[1] deals fully with this question and gives examples of cases in which fatal results have occurred from exposure to electric currents which, according to the previous teaching of electricians, should not have produced lethal results. On the other hand, from several papers read before the Institution of Electrical Engineers on Feb. 27th, 1902, it would appear, according to their authors, that the dangers of electric shock are generally exaggerated. One paper was published in our issue of March 8th, 1902, in which the author, Mr. F. B. Aspinall, made some valuable suggestions as to treatment in case of shock. In a leading article in the same issue we pointed out that the question of the mode of death by electric shock was not fully settled, although there was much to support the view that the heart is the most susceptible of the vital organs and that death from electric shock is very often death from arrest of the heart's beat. Artificial respiration should therefore always be made use of. Dr. Oliver's recently-published book has already been referred to in laudatory terms in the columns of THE LANCET,[2] and the chapter on Electric Generating Works will be found a most instructive one, although it is somewhat full of technicalities. At the present moment we are only concerned to point out that it is necessary in the public interest that the dangers of strong electric currents should be appreciated and that adequate precautions should be taken for the protection, not only of those engaged in the trade, but of all those who might suffer from the absence of sufficient protection from highly charged wires in the streets. It is due to the medical department of the Board of Trade to point out that the staff is thoroughly alive to the importance of the subject and it is satisfactory to note that Dr. Arthur Whitelegge in his recently issued report[3] congratulates the Board on the appointment of an electrical inspector, Mr. G. S. Ram, M. Inst. E.E., whose term of office commenced on May 1st.

THE DINNER OF THE OBSTETRICIANS AND GYNÆCOLOGISTS OF THE EMPIRE.

SIR JAMES GRAHAM, lecturer on midwifery at the University of Sydney, made some interesting remarks upon British obstetric medicine at the dinner of the Obstetricians and Gynæcologists of the Empire held on June 24th at the Hôtel Métropole, London. The first passage in his speech which excited the admiration of the audience was a reference to the fact that the dinner had taken place at a time when the Angel of Peace had again visited our shores, smoothing the wrinkled front of war and turning the horrors of a stupendous campaign into a joyful season of delightful pleasure. He then proceeded to draw a comparison between the history of British obstetric medicine and the history of the British Empire. British obstetric medicine, he said, appeared first as a small speck on the map of British medicine but at the present time it stood out as a strong branch of the science of medicine. It had attracted during its process of growth a large body of eminent men and of distinguished investigators who had been fired by the enthusiasm of scientific research. He declared that it was with a sense of just pride that he drew their attention to the fact that among the distinguished men who had adorned obstetric medicine the names of Simpson and Lister were acknowledged as the foremost by the whole world. Loud applause greeted the orator after this sentence and he gained still further plaudits by saying that those leaders of thought had made experiment possible. A large field of enterprise to the scientific worker had been opened up and it had brought British obstetric medicine to its present position of honour and esteem, decorated with garlands which many a joyous mother and living child had woven around it. Professional men who worked in distant parts of the empire found difficulty in adequately expressing what they owed to the teaching of the British obstetricians. Nothing made them feel their comparative national youth in the lands beyond the sea more than the fact that they had contributed so little to the common stock of obstetric medicine. Not only did the dwellers in those far lands love the old country with passion but there had been transplanted into their midst, in addition to the old laws, customs, language, and religion, an intense love for the aspirations and ideals of those at home which they humbly and earnestly were seeking to follow. The lives and examples of the famous men who had adorned British

[1] Dangerous Trades: the Historical, Social, and Legal Aspects of Industrial Occupations as Affecting Health; by a number of Experts. Edited by Thomas Oliver, M.A. Durh., M.D. Glasg., F.R.C.P. Lond. London: 1902.

[2] THE LANCET, June 21st, 1902, p. 1785.

[3] Annual Report of the Chief Inspector of Factories and Workshops for the year 1901, Part I., Reports, 1902.

obstetric medicine were beacon lights on the professional path of those on the other side of the world, and those lives were rendered sacred by the memory of their character, of their labours, and of their genius. Their professional trials, their doubts and difficulties, their temptations, and their honours were all separate strands which, woven together, constituted the bond which kept them together. Sir James Graham in concluding remarked: "Sir, may it be our good fortune to maintain the high traditions of our calling and, if possible, to add to its history, and to hand down to those who follow even a better record than we ourselves have received." Dr. (now Sir) J. Halliday Croom (President of the British Gynæcological Society), who was one of those who responded to the toast proposed by Sir James Graham of "British Obstetric Medicine," prophesied that in the course of the next generation gynæcology would have become part of general surgery and gynæcologists would have become absorbed in the ranks of general surgeons. Mr. Alban H. G. Doran proposed "The Guests" and a speech by Dr. F. H. Champneys giving the company the toast of "The Chairman" was followed by a reply from Sir John Williams in which he earnestly sought to interest the profession beyond the sea in the study of comparative human pathology. He pointed out that the British Empire contained many different races and the study of comparative human pathology must be carried on at the present time because the tendency of races was to mix and to result in a type representing no definite characteristics. Beyond that there was much work to do in the way of coördinating the work of gynæcologists and obstetricians.

THE "TURNING" EFFECT OF A THUNDER-STORM ON FOODS SUSCEPTIBLE TO CHANGE.

DURING serious electrical disturbances in the atmosphere it is well known that beer may become "hard," milk may go sour, and meat may frequently "turn." Considerable speculation has arisen as to the cause of this change. It has been suggested that an ozonised state of the air due to electric discharge has something to do with it or that the formation of nitrous acid in the air is responsible for the change. It is, however, not probable that the atmosphere undergoes any chemical change sufficient to account for the extent to which certain foods "turn." Moreover, any important quantity of ozone or nitrous acid would be calculated to exert a preservative effect, as both are powerful antiseptics. It may be urged, again, that the phenomenon is due to oxidation by means of ozone, but this can hardly be the case in view of the large quantities of beer and milk that are soured in relation to the very small quantity of ozone which a thunderstorm produces. In the case of meat, at any rate, the "turning" can scarcely be attributed to the action of ozone or of oxygen. The change is probably due not directly to chemical agencies but purely to a disturbance of the electric equilibrium. It is well known that an opposite electrical state is set up by induction, so that an electrical condition of the atmosphere induces a similar condition, though opposite in character, in the objects on the earth. Persons near whom a flash of lightning passes frequently experience a severe shock by induction though no lightning touches them, and in the celebrated experiment of Galvani he showed that a skinned frog in the neighbourhood of an electrical machine although dead exhibited convulsive movements every time that a spark was drawn from the conductor. In the case of milk "turning" or of beer "hardening" or of meat becoming tainted it is probably, therefore, an instance of chemical convulsion or, it may be, of a stimulus given to bacteriological agencies set up by an opposite electric condition induced by the disturbed electrical state of the atmosphere. Although these changes are most marked during a thunderstorm, yet undoubtedly they occur at other times, though not to the same degree, when there is no apparent electric disturbance. But even when the sky is clear the atmosphere may exhibit considerable electrical tension. The electroscope constantly shows that a conducting point elevated in the air is taking up a positive charge (as a rule) of electricity, the tension rising with the height of the point. This effect increases towards daybreak until it reaches a maximum some hours after sunrise. It then diminishes until it is weakest a few hours before sunset when again t rises and attains a second maximum value some hours after sunset, the second minimum occurring before daybreak. There are accordingly constant changes of electrical tension going on, changes, however, which are more rapid and much more marked during a thunderstorm and which are quite powerful enough to exert an evil influence on certain articles of food or drink susceptible to change, notably meat, milk, and beer or cider. There is no doubt that the unfavourable effects on the feeling of well-being experienced by many individuals, such as headache and oppression and nervous distress, on the advent of a thunderstorm have a similar foundation and are due to the same electrical differences of potential, the effects passing away as the disturbed condition of the atmosphere or the storm subsides.

THE EGYPTIAN MEDICAL CONGRESS.

A YEAR ago it was decided to hold a congress of medicine in the buildings of the Government Medical School in Cairo during the third week of next December, and we understand that the preliminary arrangements for its success are now fairly advanced. The Khedive and his Ministers have warmly accepted the scheme and will not be lacking in showing hospitality to visitors and in giving Government aid in various ways, of which printing the proceedings is an important item. Already 300 medical practitioners resident in Egypt have joined the congress, and 250 from Europe and other parts have announced their intention of being present. Steamship companies will carry members of the congress at a reduced rate to Egypt, and once arrived there they will find special facilities while staying in the hotels and while making excursions in the country. The coming winter, in addition to the usual attractions of Egypt, will allow foreigners to see for the first time the finished dam at Assouan and the new Egyptological Museum with all its assorted treasures. In every European country some honorary presidents have been appointed, those for Great Britain including Sir William Church, Bart., K.C.B., Sir Frederick Treves, Bart., K.C.V.O., C.B., Sir Christopher Nixon, Sir W. Taylor, K.C.B., Director-General of the Army Medical Service, Dr. Patrick Manson, C.M.G., and Professor A. E. Wright of Netley. Delegates have already been appointed to represent various bodies, such as the Royal College of Physicians of London, the Royal College of Surgeons of England, the Royal College of Physicians of Ireland, the Clinical Society of London, the Laryngological Society of London, the Royal Medical and Chirurgical Society, the Röntgen Society, and other societies. The work of the congress is to be divided among only four sections: Medicine, with Dr. F. M. Sandwith as one of the vice-presidents; Surgery, with Mr. H. M. N. Milton as president and Mr. F. C. Madden as a vice-president; Ophthalmology, with Dr. E. C. Fischer as vice-president; and Tropical Diseases presided over by Dr. M. A. Ruffer. An English committee under the presidency of Sir Frederick Treves has been formed to forward the interests of the congress, and Sir Thomas Smith, Bart., K.C.V.O., Dr. Stephen Mackenzie, Sir Lauder Brunton, Dr. Savage, Sir Victor Horsley, Dr. James Taylor, and Mr. W. Watson Cheyne, C.B.,

most of whom have recently travelled in Egypt, have consented to act upon it. Dr. W. Page May, of 9, Manchester-square, London, W., has been appointed honorary secretary of this local committee, and to him all questions on the subject should be addressed. In wishing success to the first Egyptian Congress of Medicine we may remind those of our readers who are fortunate enough to be able to take a winter holiday of the saying of an old Jewish physician: "He who hath not seen Cairo hath not seen the world. Her soil is gold, her Nile is a marvel, her air is soft with an odour above aloes, refreshing the heart. And how should Cairo be otherwise when she is the Mother of the World?"

THE PREVALENCE OF SMALL-POX.

THE following figures show the number of patients admitted to the various hospitals of the Metropolitan Asylums Board for the dates mentioned:—On Saturday, June 28th, there were 14 fresh cases; on Sunday, the 29th, there were eight fresh cases; on Monday, the 30th, there were 12 fresh cases; on Tuesday, July 1st, there were 14 fresh cases; and on Wednesday, the 2nd, there were six fresh cases. For the week ending June 28th 15 fresh cases of small-pox were notified in the county of Essex, and owing to the marked diminution in the number of cases the weekly list hitherto issued by the medical officer of health will be discontinued for the present, its place being taken by a monthly return.

OPTIC NEURITIS PRIMARILY PRODUCED BY SYPHILIS.

OPTIC neuritis primarily resulting from syphilis is decidedly rare and, indeed, its existence has been denied by some writers. In the majority of cases of optic neuritis following syphilis of some years' standing the neuritis has been observed to follow the formation of a cerebral gumma, but in the class of cases referred to below the antecedent condition was one of recent syphilis directly producing the symptoms in question. Leber states that the optic neuritis of primary syphilis is different from that secondary to cerebral gumma, but the former disease is, as already stated, so rare that Horstmann (1889) was able to collect only eight cases from medical literature. In the *American Journal of the Medical Sciences* for June Dr. C. A. Veasey of Philadelphia reports two cases of the disease, together with the results of treatment. The first case was that of a man, aged 45 years, who had been suffering from growing dimness of sight and diminution of visual acuity for a fortnight. The ocular media were clear and the pupillary reactions were normal. Ophthalmoscopic examination showed a moderate degree of papillitis, more marked in the left optic disc. The patient had had a syphilitic chancre three months previously, the infection being followed by the development of a characteristic cutaneous rash and mucous patches. The field of vision was symmetrically contracted but there was no central scotoma. The patient had been taking mercury irregularly. He was now treated with mercurial inunctions and rapidly increasing doses of potassium iodide. Improvement began in a week and in two months the optic neuritis had disappeared and vision was normal. The second case was that of a woman, aged 43 years, the wife of the above patient. She suffered from gradually increasing inability to see objects. Ophthalmoscopic examination showed commencing papillitis in the right eye and moderate papillitis in the left. The patient had been infected with syphilis by her husband and had been taking mercury irregularly since then. The field of vision was contracted only in the left eye. She was put through the same treatment as her husband with the result that the papillitis subsided in six weeks and vision was restored to the normal soon after. The very favourable results of treatment in these two cases are attributed by Dr. Veasey to the early administration of mercury and iodides, as it has been proved that in cases of such neuritis occurring more than a year after infection recovery was rarely obtained.

THE WASTE OF WATER IN CITIES.

PARIS was one of the cities which were held up as examples to London of the beneficial effects of a municipal water-supply and M. Gaston Cadoux, chef de bureau of the Prefecture of the Seine, was good enough to come, at the request of the London County Council, that he might instruct Lord Llandaff's Commission[1] on the question. *Le Figaro* of June 28th, which is usually well informed on all matters Parisian, gives an amusing sketch of the effects of the heat on the chief director of the water-supplies of the city. He will not agree with his secretary that the climatic conditions are superb—in fact, he hates dry and hot weather. He sees from the windows of his office a profusion of vegetables and of flowers. The vegetables are washed in water and they will be cooked in water, the flowers will be put into water to keep them fresh. In a few days the water will fail and then they will blame him. It had been prophesied that there would be no heat and no drought before the end of June and he did not therefore expect to have to take any "special measures" before July. The secretary inquires as to the nature of the special measures which will be adopted. "What naturally would they be? We shall limit the consumption of water, we shall put the consumers on a fixed allowance, we shall close the conduits. That is the best way of preventing the Parisians from being without water." If the *Figaro* is not too severe on the director of the Paris water-supplies it must be admitted that his views as to the waste of water accord very accurately with those of some of the present metropolitan water company directors and of some of their engineers.

A NEW GASOMETRIC METHOD FOR THE QUANTITATIVE DETERMINATION OF FREE HYDROCHLORIC ACID IN THE GASTRIC JUICE.

A KNOWLEDGE of the amount of free hydrochloric acid present in the gastric juice is frequently an important element in diagnosis and many analytical processes have, accordingly been devised for this purpose. The well-known method of Sjoqvist depends on the fact that when gastric juice is evaporated with barium carbonate and the residue gently ignited the organic acids are destroyed, but the barium chloride produced by the action of the free hydrochloric acid remains unaffected and can be estimated as usual. This may obviously be done either by precipitation and weighing or volumetrically, but Professor E. Riegler of Jassy, in Roumania, has suggested a gasometric process which he considers to be simpler than the preceding and more applicable for clinical purposes. His method, which is described in the *Deutsche Medicinische Wochenschrift* of June 19th, is based on the reactions (1) that barium iodate is precipitated when a solution of barium chloride is treated with iodic acid, and (2) that nitrogen is evolved from a mixture of barium iodate and hydrazin sulphate. He mixes 10 cubic centimetres of gastric juice with half a gramme of barium carbonate in a platinum capsule thoroughly with a glass rod, evaporates to dryness in the water bath, and ignites gently till the ash becomes grey. The residue is extracted with a small quantity of boiling water, which must not exceed 40 cubic centimetres, and this solution is treated in a small flask with five cubic centimetres of a 6 per cent. solution of crystallised iodic acid, shaken,

[1] At the twenty-second sitting of the Royal Commission on the London Water-supply, May 16th, 1898.

and left at rest for a quarter of an hour. The precipitated barium iodate is then washed on a filter until the total filtrate and washings measure 100 cubic centimetres, after which the filter with its contents is placed in the inner compartment of the evolution flask of a nitrogen apparatus—namely, either a Knop-Wagner azotometer or a Riegler's urea apparatus. 40 cubic centimetres of a 2 per cent. solution of hydrazin sulphate are placed in the outer compartment of the evolution flask, which is then immersed in a vessel of water at the temperature of the room. After the lapse of 10 minutes the usual flexible air-tight connexions are made between the flask and the graduated burette of the apparatus, and the flask is violently shaken for half a minute at short intervals until its contents, which at first were yellow from liberated iodine, become ultimately colourless. For each two molecules of hydrochloric acid six atoms of nitrogen are evolved. The volume of nitrogen after reduction to 0° C. and 760 millimetres' pressure gives when measured in cubic centimetres and multiplied by the coefficient 1·083 the weight of the hydrochloric acid in milligrammes, to which 3·2 milligrammes must be added for the amount of barium iodate dissolved in 100 cubic centimetres of filtrate and washwater. If the foregoing analysis be performed without igniting the residue left on the water-bath the result will give the total acidity of the gastric juice expressed as hydrochloric acid.

THE CAMPAIGN AGAINST PALUDISM IN THE ROMAN CAMPAGNA.

IN order to investigate the progress of the campaign against malaria which is being carried on in the Roman Campagna under the auspices of Professor Grassi Dr. Guiart of Paris paid a visit to Ostia last September and has recorded his observations in a short article which appears in the *Archives de Parasitologie*, vol. v., No. 3. On the present occasion Professor Grassi determined to discard all mechanical means of protection against the attacks of the anopheles, being desirous of testing the prophylactic virtues of quinine, both alone and also in combination with other drugs. At first the peasantry residing in the vicinity refused to submit themselves to the treatment, but by degrees, on the appearance amongst them of malarial symptoms, they changed their minds and went voluntarily to the dispensary. The preventive system recommended by Koch, in which quinine is given at intervals of eight or nine days, having proved a failure the salt was administered daily but with equally bad results. Professor Grassi then made trial of a compound, containing quinine, iron, and arsenic, which had been prepared for him by Signore Bisleri of Milan, and found it perfectly successful. This compound is employed in two forms—as a pill and in solution. In the first form, to which the name of "esanophele" has been given, the ingredients in each pill are as follows: bichlorhydrate of quinine, 0·10 gramme; citrate of iron, 0·03 gramme; arsenious acid, 0·001 gramme; and bitter extract, 0·15 gramme. Adults take six pills daily for 15 days, 90 pills in all. Children aged from seven to 14 years take four pills daily; from three to six years, two pills daily. Under three years of age the medicament is administered as a solution which is said to possess an agreeable taste. This form, which is prepared in three strengths, has been named "esanopheline." The foregoing is called the "intensive" treatment, the object being in the first place curative and secondly prophylactic. After 15 days the daily dose for adults is reduced to two pills every morning, while that for children and infants undergoes a proportionate reduction. It goes without saying, continues Dr. Guiart, that the treatment is very seriously supervised, the medicaments being given in the presence of Professor Grassi himself. In a certain thrashing-floor 120 workmen were employed; of these 60 were left without treatment, and they all, without a single exception, contracted malarial disease. The other 60 were given preventive "esanophele" regularly and have remained healthy. The Campagna around Ostia is being re-peopled, remarks Dr. Guiart in conclusion. Instead of migrating as usual the inhabitants stand fast with their families and all keep in good health. No ague cakes are to be found; the people all look well. Citizens from Rome now come to Ostia to spend their holidays. The anopheles continues to sting but no longer finds germs to disseminate.

THE MEDICAL SERVICE OF INTERCESSION FOR THE KING.

THE Guild of St. Luke organised on behalf of the medical profession a service of intercession for His Majesty the King at St. Paul's Cathedral on the evening of July 2nd. Although but short notice had been given upwards of 400 medical men were present, including Sir Dyce Duckworth, Dr. Symes-Thompson, Mr. George Cowell, and Mr. Hutchinson. The music was directed by the Rev. J. B. Croft of St. Matthew's, Westminster. The Litany was sung in procession and owing to the occasion being penitential the procession went by way of the north aisle. The clergy wore red copes and the Doctors of Medicine wore their scarlet. At the conclusion of the service, the order of which more or less followed the Office of Compline, the following message was sent to the Queen: "The Guild of St. Luke, associated with many members of the medical profession, having assembled in St. Paul's Cathedral this evening to offer an intercessory service to Almighty God on behalf of His Majesty the King in his sickness, beg leave to present their humble duty to your Majesty and to express their fervent wishes for His Majesty's speedy and complete recovery."

EMPYEMA OF THE FRONTAL SINUS IN MEASLES.

EMPYEMA of one of the nasal sinuses is an exceedingly rare complication of measles. At the meeting of the Société Médicale des Hôpitaux of Paris on May 30th M. Joseph Belin described a case in which empyema of the frontal sinus occurred. A youth, aged 18 years, who had indifferent health, was seen on Nov. 12th, 1901. He had been ill three or four days and presented the early symptoms of measles—coryza and congestion of the palate and pillars of the fauces. Frequent douching of the eyes, mouth, nose, and ears with a saturated solution of boric acid was ordered. In the afternoon the eruption appeared. On the following day the left eyelids were very œdematous; the patient could not move them. The œdema was not limited to the eyelids. Over the left frontal sinus there were redness and swelling and pressure was acutely painful. Inflammation of the frontal sinus was diagnosed and in addition to the boric douches previously ordered moist compresses to the left eye and instillations of menthol oil into the nose were prescribed. Next day the œdema was still greater and appeared to involve the tissues covering the right frontal sinus. On the following day the right side was no longer involved but there was severe pain in the position of the left upper lid and frontal sinus. Surgical intervention was intended bu epistaxis suddenly occurred from the left nostril and was soon followed by discharge of fœtid pus. Improvement took place at once and the swelling of the forehead and left eyelids diminished. The purulent discharge continued for five or six days. Swelling persisted only over the upper lid. Redness and fluctuation showed that there was an abscess in its outer part, which was incised. The pus discharged from the nose contained several varieties of microbes

—streptococci and staphylococci in great number, some pneumococci, and few micrococci tetrageni. The pus from the abscess contained streptococci and staphylococci aurei. In empyemata of the nasal sinuses the pus rarely yields pure cultures but several microbes which are normally present in the naso-pharyngeal cavity.

PRACTICAL POINTS FOR PLUMBERS.

THE series of lectures for plumbers which has been commenced under the auspices of the Worshipful Company of Plumbers is an excellent departure. The first of these lectures was given at King's College, London, on June 20th by Mr. E. Russell, B.Sc., F.I.C., the senior demonstrator of state medicine at the college, who chose for his subject "Physics and Chemistry in Relation to Plumbers' Work." The lecture was illustrated by diagrams and practical demonstrations. In dealing with the action of water on metallic lead the lecturer pointed out the effect of very soft waters upon lead and of acid waters, while the protective action of lime salts which give water an alkaline reaction was demonstrated. The part that gases play in this action was also discussed. The action, for instance, of beer highly charged with carbonic gas upon the lead of the beer-engine was quoted. It was stated that cabmen served with the first draught of beer in the morning get a large amount of dissolved lead but that after the first serving the beer runs quickly enough for practically no action to take place. The lecturer also referred to other sources of the metallic contamination of water and in one instance he traced the perforations in a galvanised iron tank to a galvanic action which had been set up by the copper ball-valve. The lecture was given in the simplest terms and was listened to with evident interest, a short discussion following. We wish the movement every success as a very practical step in education.

FLUORIDES IN BUTTER.

DOUBTLESS the anticipation that the Preservatives Committee of the Local Government Board might be led to condemn the use of the most common preservative, borax, prompted certain butter-makers to look further afield for a preservative which so far would be beyond legislative control. For this purpose sodium fluoride appears to have been tried with some success. According to Mr. Otto Hehner, in a paper read at a recent meeting of the Society of Public Analysts, the use of fluoride for this purpose is at present confined to certain French butters, but it is not unlikely, especially in view of the fact that a small quantity of the fluorides suffices and that the determination of the actual amount is not easy, that the practice may spread. Fluorides are not interdicted in any way in the recommendations of the Departmental Committee and it seems to us that before these recommendations are resolved into regulations under the Board of Trade the question of fluorides should be considered and determined. These salts have not been very fully studied in regard to their action on the organism but experiments have already established that they are inhibitory to the digestive processes even in the very small amounts used. In view of this fact it would be very regrettable, we think, if the Departmental Committee did not take cognisance of this matter before allowing its recommendations to become part of the statutes regulating the sale of foods. We cannot understand why the recommendations thus laid down have so far not been put into effect although the report was published over six months ago. The delay, however, is perhaps fortunate in one respect, for it will enable the committee to deal with fluorides in the same way and in the same category as the better-known preservatives. It is quite probable that the fluorides may not in the small quantity necessary for the purpose be any worse than borax, but it is desirable that the use of all antiseptics in food should be brought under effectual control.

PARALYSIS OF THE OCULAR FIBRES OF THE SYMPATHETIC NERVE IN PULMONARY TUBERCULOSIS.

AT the meeting of the Société Médicale des Hôpitaux of Paris on May 23rd M. A. Souqes called attention to a complication of pulmonary tuberculosis which appears not to have been previously observed. He showed a man, the subject of chronic pulmonary tuberculosis, who presented symptoms of paralysis of the left cervical sympathetic nerve—myosis, narrowing of the palpebral fissure, and retraction of the eye. Nothing in the history or condition of the patient pointed to any of the usual causes of this paralysis—affections of nerve roots, pachymeningitis, myelitis, or bulbar lesions. M. Souqes was wondering whether there was any relation between the paralysis of the sympathetic nerve and the tuberculosis when he found in two other cases of pulmonary tuberculosis the same nerve symptoms. The pupil-dilating fibres of the sympathetic pass out from the spinal cord principally, if not entirely, by the ramus communicans of the first dorsal nerve, to the first thoracic ganglion of the sympathetic, thence they pass by the inferior cervical ganglion to the cervical sympathetic trunk. The first thoracic and inferior cervical ganglia are so near one another that they are often confounded as one under the name of the ganglion of Neubauer. This ganglion is very close to the apex of the lung. Hence inflammation of the latter may give rise to pleuritic thickening and adhesions which may involve and paralyse the pupil-dilating fibres of the cervical sympathetic either in the rami communicantes or in the ganglion. In the absence of necropsies the exact position of the lesion cannot be stated.

A BLEACHING POWDER EXPLOSION.

SINCE bleaching powder is not a particularly stable compound it is not difficult to imagine conditions under which it would evolve gas and cause an explosion. Nevertheless accidents of this sort do not appear to be of frequent occurrence, which may be attributed to the fact, perhaps, that bleaching powder is commonly sold to the public in a loose package. When the powder is contained, however, in an air-tight tin the gas evolved may accumulate in sufficient quantity to give rise to pressure. This apparently was what happened in a case which was the subject of an action in the King's Bench Division on June 30th. The plaintiff stated that she purchased a tin of chlorinated lime at a branch establishment of the Army and Navy Coöperative Society. The tin was provided with a lever top which on being eased was suddenly forced outwards and a portion of the contents of the tin went into her eyes and caused great pain. Evidently something of the nature of an explosion had occurred, for the floor was covered with white powder within a radius of seven feet from the tin and the lid of the tin was found in the fireplace 10 feet away. Eventually the jury awarded the plaintiff £175 damages and no doubt they were very much impressed by an experiment made on behalf of the defence. A witness for the defence proceeded to open a similar tin in court and as soon as the lid was eased a quantity of the contents was discharged and scattered itself on the witness's clothing. Strong freshly prepared chlorinated lime does undoubtedly give off oxygen gas under certain circumstances. We have known a mixture of chlorinated lime and bicarbonate of soda to explode violently. The moral of this case would appear to be that fresh chlorinated lime should not be packed in absolutely air-

tight cases or else directions should be given to prick a hole, however tiny, in the lid before attempting to remove it. This would allow the escape of any gas that may have accumulated and then the lid could be removed without danger.

THE CHOLERA IN ARABIA: OUTBREAK IN THE YEMEN.

THE British delegate to the Ottoman Board of Health writes to us as follows: "During the past few weeks cholera, which had completely disappeared from the Hedjaz with the end of the Mussalman pilgrimage, has broken out in the more southernly Arabian province of the Yemen. Although information is at present lacking which would definitely prove that the infection has been carried to the latter by pilgrims returning from the Hedjaz, it is highly probable that the outbreak in the Yemen has been brought about in this way. The outbreak was first reported by telegram from the quarantine station at Camaran on May 10th. One of the medical officers of the sanitary service was at once despatched to Sabia, the scene of the epidemic, to report upon the nature of the disease. Sabia is stated to be an Arab town with about 22,000 inhabitants, living in *ariches* or mat huts. It is about seven hours' journey from the Red Sea coast and is described as situated in a deep valley entirely devoid of vegetation. It is provided with a water-supply of very bad quality and is said to be in the worst of sanitary conditions. The population resisted all attempts at treatment or at isolation and other precautionary measures and the medical mission had to content itself with examining a few of the patients and determining the nature of the disease. The description of the symptoms contained in the reports received up to the present leaves practically no room for doubt that the disease is true Asiatic cholera. Down to May 20th the outbreak was confined to Sabia itself, to the village of Omeh-Hassim to the north, and to two other villages named Selama and Melche. About 200 cases and 80 deaths were believed to have occurred in all down to the date just named. This outbreak being confined to the interior of the country the measures taken to control it are in the hands of the Turkish Government; but, in accordance with precedent, the services of the medical and other employés of the sanitary administration (under the Ottoman Board of Health) have been lent to the Government. The measures have taken the nature of a cordon round the infected district and certain dispositions to prevent the disease spreading to the surrounding districts or to the coast. Later telegrams from Hodeida, on the Red Sea coast, have reported an extension of the disease to the district of Abon-Arish, but telegrams from other sources have, on the other hand, denied the statement."

THE prizes will be distributed to the students of the medical school of St. Thomas's Hospital on July 10th, at 3 P.M., by Sir Henry F. Norbury, M.D., K.C.B., Director-General of the Medical Department of the Royal Navy, in the Governors' Hall of the hospital, before and after which the various departments of the hospital and school will be open for the inspection of visitors.

A GARDEN party will be held at the Epileptic Colony, Chalfont St. Peter, Bucks, on July 9th, when visitors will be afforded an opportunity of seeing the colonists engaged in their usual work upon the farm, in the gardens, in the workshops, and in the laundry.

THE annual meeting of the Association for the Oral Instruction of the Deaf and Dumb will be held at the Portman Rooms (Dorset-street entrance) on Wednesday, July 9th, 1902, at 3.30 P.M., when a short illustration of the system will be given. The Earl of Crewe will preside.

THE STATISTICS OF CREMATION.

BY SIR HENRY THOMPSON, BART., F.R.C.S. ENG.,
CONSULTING SURGEON TO UNIVERSITY COLLEGE HOSPITAL, ETC.
PRESIDENT OF THE CREMATION SOCIETY OF ENGLAND SINCE 1874.

I AM indebted to my friend, M. Georges Salomon, secrétaire générale de la Société pour la Propagation de l'Incinération de Paris, for the following statistics of French and other European crematoria for the year 1901.

The following facts are gathered from the report read, and speeches made, by M. Georges Salomon and Dr. Bourneville at the annual meeting of the Société pour la Propagation de l'Incinération de Paris.

Germany possesses seven crematoria. The following table gives the number of cremations performed at each during the year 1901:—

Gotha	218	Jena	85
Hamburg	181	Mannheim	23
Heidelberg	104		
Offenbach	82	Total	693

The crematorium at Mannheim was opened in February, 1901, while the seventh—at Eisenach—was only inaugurated in January last. The total shows a considerable increase on that of the previous year. Recently a petition signed by over 3000 medical men has been presented in the Reichstag with a view of rendering compulsory the cremation of persons who have died from infectious diseases.

England also possesses seven crematoria. The following table gives the number of cremations at each for 1901:—

Woking	273	Hull	17
Manchester	95	Darlington	2
Liverpool	40		
Glasgow	18	Total	445

Those at Hull and Darlington only commenced working during the course of the year, while the seventh, that at Leicester, has not yet been inaugurated. Yet another is in process of construction in the north of London on a tract of land several acres in extent and 2000 trees have already been planted there so as to form a park round the crematorium; it is expected that it will be ready to commence operations before the end of the present year. The total of 445 cremations for England for 1901 compares with 301 in 1900 and 240 in 1899.

There are 26 crematoria in the United States, of which 24 are in operation (see below).

In Canada, notwithstanding the opposition of the Roman Catholic clergy, the legislature of Quebec has declared the legality of cremation and a crematorium has just been inaugurated at Montreal, in which special regard has been had to the beauty of the building and its surroundings.

Returning to Europe we find that Italy possesses 22 crematoria, the last opened being at Pistoia, which was inaugurated during the meeting there of the fifth congress of the Italian cremation societies in October last. The only statistics furnished are those of Bologna, where 21 cremations were performed in 1901 (see below).

In Switzerland there are three crematoria—viz., at Zürich, Basle, and Geneva. At Zürich 127 cremations were performed as compared with 116 in 1900. In Geneva the first body was burned on March 8th last only. A fourth crematorium is in course of erection at St. Gall which is expected to cost about £3000.

Sweden possesses crematoria at Stockholm and Gothenburg and Denmark possesses one at Copenhagen, at which 34 cremations were performed in 1901 as against 28 in 1900.

In Austria-Hungary societies for the promotion of cremation continue to be formed under the influence of the Vienna society "Die Flamme," and branches exist in Budapest, Innsbruck, Gratz, Prague, and Mährisch-Ostrau, but the practice of cremation has not yet been legalised.

This right, however, has been conferred on Madrid by a royal decree of August 3rd, 1901, which bases its introduction on hygienic grounds.

Even in Russia, in spite of the protestations of the Procurator of the Holy Synod, the Government proposes to issue a decree in favour of making cremation optional.

Finally, in France, we have the statistics for the crematorium at Père-la-Chaise, Paris, which are presented in tabular form with those of previous years for comparison. Omitting hospital remains, &c., which are cremated in Paris, from the original report, but not deemed necessary to be quoted here, the number of cremations among private families from the commencement in 1889 to 1901 inclusive is 2299. Those for the last-named year were 306, as compared with 297 in 1900.

I am able to add to the above, having directly communicated by letter with each of the crematoria in the United States, the following statistics to the end of 1901:—

No.	—	1901.	Total from commencement.
1	Fresh Pond, N.Y.	654	4567
2	Buffalo, N.Y.	50	534
3	Troy, Earl C., N.Y.	19	166
4	Swinburne Island, N.Y.	3	114
5	Waterville, N.Y.	1	39
6	St. Louis, Miss.	141	1195
7	Philadelphia, Pa.	119	1037
8	San Francisco "Odd Fellows," Cal.	666	2201
9	San Francisco "Cypress Lawn," Cal.	91	723
10	Los Angelos, Cal.	65	562
11	Boston, Mass.	171	—
12	Cincinnati, Ohio.	89	736
13	Chicago.	182	877
14	Mount Auburn Cem., Mass.	119	169
15	Pittsburg, Pa.	24	239
16	Baltimore.	20	200
17	Lancaster, Pa.	2	101
18	Davenport, Iowa.	29	162
19	Milwaukee.	45	223
20	Washington.	33	149
21	Washington, "Le Moyne."	1	43
22	Pasadena, Cal.	46	158
23	St. Paul, Minn.	20	76
24	Fort Wayne, Ind.	5	18

For Italy, besides Bologna above mentioned, I can add the following, the first column also showing total to the end of 1901:—

—	1901.	Total from commencement.
Asti	2	30
Bologna	21	176
Lodi	2	52
Udine	2	49
Rome	59	941
Venice	7	50
Modena	2	29
Milan	103	1647
Cremona	1	124
Spezia	5	5
Turin	23	260
Florence	16	301
And also—		
Basle (Switzerland)	17	68

Finally, as on every preceding occasion of publishing annual statistics of crematoria, I append the total of the cremations at Woking, of which the first took place in 1885, with three in number for that year, the total amounting to 2097 at the end of 1901:—

Record of Cremations performed at Woking from Commencement of Operations.[1]

Year.	No.	Year.	No.
1885	3	1895	150
1886	10	1896	137
1887	13	1897	173
1888	28	1898	240
1889	46	1899	240
1890	54	1900	301
1891	99	1901	273
1892	104		
1893	101	Total	2097
1894	125		

THE GENERAL MEDICAL COUNCIL: MR. GEORGE JACKSON'S REPORT TO THE ELECTORS.

MR. GEORGE JACKSON of Plymouth has sent us the following with a request for its publication:—

In accordance with my promise to the electors I write a short *résumé* of the proceedings of the General Medical Council, touching especially on the points of general interest and those in which I took some small part. The special meeting of the Council which took place in February was held for the special object of dealing with the question at issue with the Colleges of Physicians and Surgeons—viz., as to the recognition of certain schools as proper places for the commencement of medical studies. This question was referred to the May meeting to receive a report of the primary examinations. As this has not yet been done no report was before the Council. It is, however, probable that some additional places, such as technical schools, may be recognised. It is important that whilst no places be recognised which are unfitted as places of study, yet it should be made possible that the commencement of medical studies may be made at such places.

The work of the General Medical Council is much more complex and varied than would appear to be the case to an outside observer.

Judicial Duties of the Council.

This session the work with regard to penal cases, which were to a great extent dealt with *in camerâ*, was very heavy and, I think I may say, somewhat painful. The Council was called upon to decide cases in which the moral character of medical men was brought into question, it being alleged against them that they had taken advantage of their positions as medical men to act improperly towards female patients. These cases appeared to reveal a tendency on the part of the public to try to punish delinquents of this sort by means of the Council instead of by the ordinary courts of law. It was, however, held by the legal advisers of the Council that the Council would be only doing its duty in dealing with such cases. One satisfactory feature was the case of Dr. Rendall who had been acting for the National Medical Aid Company. He announced that he had discontinued his connexion with the company in obedience with the request of the Council. This will therefore have the effect of checking the advertising and touting for members by these medical aid societies.

The Financial Position.

One of the most important subjects brought before the Council on this occasion was the financial position of the Council. It is evident that unless some radical steps are taken the Council must become bankrupt. Its expenditure exceeds its income very considerably—last year by £1509. Various propositions, as it will be seen by the report, were made. I moved a resolution to the effect that a small annual licensing fee of 10*s.* should be paid by all those medical practitioners who were in practice, not of course to apply to those who had already paid the £5 registration fee, for the first five years. The

[1] From the Transactions of the Cremation Society of England, No. XV., published in the spring of 1902.

effect would be to bring the profession more in touch with the Council and possibly, as one of the members suggested, lead to an increase in the number of Direct Representatives by the fact that representation should accompany taxation. Roughly speaking, this plan should provide an income of £12,000 per annum. This would not be too much in the face of the additional work put on and expected of the Council. Some economies might also be practised—i.e., as suggested by Mr. George Brown, the grouping together of some of the corporations, and so diminishing the number of Representatives instead of, as at present, increasing it every time a new university is created or when the right to a Representative on the Council is also granted. I am glad to say that this proposition was supported by the three Direct Representatives for England and Wales.

The Midwives Bill.

The report of the committee on this question was not accepted, it being thought that the Council had already done all that could be done, but Mr. Brown's resolution condemning the Bill, which I had the pleasure of seconding, was passed by a large majority. A matter of considerable interest to members of the medical profession was also carefully considered—viz., the regulations as to the necessary curriculum for the Diploma of Public Health, three months being substituted for six months as the period allotted for outdoor sanitary work and three months to be spent in attending a course of lectures on sanitary law and cognate subjects. The conclusion that attention should be paid to methods of administration in an infectious hospital was adhered to. This is doubtless a very essential point, as in the provinces, at all events, medical officers of health have infectious diseases hospitals under their control.

The question of preliminary education was the subject of a deputation from the British Medical Association to the Education Committee of the Council, urging amongst other matters the institution of a preliminary examination by the Council itself. If this was done it would insure a uniform standard of efficiency and need not prevent universities, &c., holding their own examinations as well. The reply of the committee will be made in due course.

Looking Back.

FROM

THE LANCET, *SATURDAY, JULY 3,* 1824.

Taliacotian Operation for a New Nose. From the Gazette de Santé, June 15.

One of the most horrible deformities is undoubtedly that which results from the loss of the nose, and that operation may be regarded as a great triumph of surgery, by which we are enabled to make, if not a perfect, at least a supportable nose by taking a portion of skin sufficient for this purpose from the forehead of the patient. This operation, which has recently been called the *rhinoplastic*, has been successfully performed by Professor DELPECH. The patient who was the subject of it had lost his nose from the effects of syphilitic ulcers; after a long course of treatment, the operation was performed on the 4th of June, 1823. In the month of August following, the cicatrix was perfect, and the patient returned to Toulon, his country, where he became an object of general astonishment, so happily was nature imitated by his artificial nose.

We learn from an English Medical Journal that Mr. Travers, a Surgeon of St. Thomas's Hospital, recently performed the same operation, but not with the same success, half of the skin detached from the patient's forehead having mortified.

QUACKERY *alias* SWINDLING.

A fellow of the name of *Munsteall*, who for some time past has been flourishing not a hundred miles from Liverpool, in the character of a Medical Practitioner, and as a Member of the Royal College of Surgeons, in London, has lately deemed it prudent to remove to this Metropolis, and has taken up his residence in the neighbourhood of Cavendish-square. We consider it our duty to caution all persons against having any transactions with this worthless impostor. He has duped and ruined hundreds in the North, and we suspect that it is his intention to be guilty of similar atrocities here. We, however, will frustrate his intention, by exposing to the whole world, the real character of the nefarious scoundrel; and in doing which, though we shall execute a most irksome task, yet we are confident it will prove of great public service.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8383 births and 4258 deaths were registered during the week ending June 21st. The annual rate of mortality in these towns, which had been 16·5, 16·0, and 15·0 per 1000 in the three preceding weeks, further declined to 14·9 per 1000 in that week. In London the death-rate was 14·4 per 1000, while it averaged 15·2 in the 75 other large towns. The lowest death-rates in these towns were 4·1 in Hornsey, 7·0 in East Ham, 7·6 in Bournemouth, 7·7 in King's Norton, 8·2 in Walthamstow, 8·3 in Hanley, 9·1 in Yarmouth, and 9·3 in Wolverhampton and in Aston Manor; the highest rates were 20·1 in Middlesbrough, 20·5 in Barrow-in-Furness, 21·0 in Tynemouth, 21·8 in Rhondda, 22·9 in Sunderland, 23·6 in Rochdale, and 24·6 in Wigan. The 4258 deaths in these towns in the same week included 481 which were referred to the principal infectious diseases, against 555 and 496 in the two preceding weeks; of these, 481 deaths 156 resulted from measles, 103 from whooping-cough, 60 from diarrhœa, 53 from diphtheria, 52 from scarlet fever, 31 from small-pox, and 26 from "fever" (principally enteric). In Croydon, Hornsey, East Ham, Reading, Aston Manor, Stockport, and seven other smaller towns no death from any of these diseases was registered; while they caused the highest death-rates in Tottenham, West Bromwich, St. Helens, Rochdale, Barrow-in-Furness, Gateshead, and Rhondda. The greatest proportional mortality from measles occurred in Burton-on-Trent, West Bromwich, Rochdale, Barrow-in-Furness, Sunderland, Gateshead, and Rhondda; from scarlet fever in St. Helens; from whooping-cough in Southampton and South Shields; and from "fever" in Burnley. The mortality from diphtheria showed no marked excess in any of the large towns. Of the fatal cases of small-pox registered in the week 24 belonged to London, four to West Ham, and one each to Willesden, West Ham, and Liverpool, but not one to any other of the 76 large towns. The number of small-pox patients under treatment in the Metropolitan Asylums hospitals, which had been 1274, 1162, and 1035 at the end of the three preceding weeks, had further declined to 861 at the end of the week; 107 new cases were admitted during the week, against 251, 188, and 157 in the three preceding weeks. The number of scarlet fever cases in these hospitals and in the London Fever Hospital on Saturday, June 21st, was 2450, against numbers increasing from 2207 to 2347 on the five preceding Saturdays; 378 new cases were admitted during the week, against 319, 310, and 282 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 261, 200, and 166 in the three preceding weeks, rose again in the week to 173, but were 15 below the corrected average number. The causes of 51, or 1·2 per cent., of the deaths in the 76 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Salford, Leeds, Newcastle, and in 47 other smaller towns. The largest proportions of uncertified deaths were registered in Reading, Birmingham, Leicester, and Liverpool.

During the week ending June 28th 6823 births and 4293 deaths were registered in 76 of the largest English towns. The annual rate of mortality in these towns, which had been 16·0, 15·0, and 14·9 per 1000 in the three preceding weeks, rose again last week to 15·1 per 1000. In London the death-rate was 14·2 per 1000, while it averaged 15·4 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 6·5 in Wallasey, 7·6 in Bournemouth, 7·7 in Ipswich, 8·9 in Grimsby, 9·0 in Hornsey, 9·2 in Smethwick and in York, and 9·5 in Croydon; the highest rates were 18·8 in Manchester and in Barrow-in-Furness, 19·9 in Warrington, 20·0 in St. Helen's, 21·4 in Merthyr Tydfil, 21·9 in Liverpool, 24·2 in Oldham, and 30·5 in Wigan. The 4293 deaths in these towns last week included 476 which were referred to the principal infectious diseases, against 555, 496, and 481 in the three preceding weeks; of these 476 deaths 127 resulted from measles, 117

from whooping-cough, 59 from scarlet fever, 59 from diarrhœa, 54 from diphtheria, 34 from "fever" (principally enteric), and 26 from small-pox. No death from any of these diseases was registered last week in Croydon, Walthamstow, Hastings, Northampton, Great Yarmouth, Grimsby, Bury, Rotherham, or York; while they caused the highest death-rates in East Ham, Hanley, Coventry, Derby, St. Helens, Wigan, Barrow-in-Furness, Middlesbrough, and Rhondda. The greatest proportional mortality from measles occurred in Bournemouth, Plymouth, Derby, Barrow-in-Furness, Bradford, and Rhondda; from scarlet fever in Burnley; from diphtheria in Coventry and St. Helens; from whooping-cough in Leyton, Norwich, St. Helens, Salford, Barrow-in-Furness, Middlesbrough, and West Hartlepool; from "fever" in St. Helens; and from diarrhœa in Willesden and Hanley. The fatal cases of small-pox registered last week included 17 which belonged to London, four to West Ham, two to Tottenham, two to Swansea, and one to Bootle. The number of small-pox patients under treatment in the Metropolitan Asylums hospitals, which had been 1162, 1035, and 861 at the end of the three preceding weeks, had further declined to 837 at the end of last week; 129 new cases were admitted during the week, against 168, 157, and 107 in the three preceding weeks. The number of scarlet fever cases in these hospitals and in the London Fever Hospital on Saturday, June 28th, was 2496, against numbers increasing from 2207 to 2450 on the six preceding Saturdays; 276 new cases were admitted during the week, against 310, 282, and 378 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 200, 166, and 173 in the three preceding weeks, further rose last week to 194, and were 21 above the corrected average. The causes of 35, or 0·8 per cent., of the deaths in the 76 large towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bristol, Birmingham, Manchester, Salford, Newcastle, and 51 other smaller towns; the largest proportions of uncertified deaths were registered in West Ham, Liverpool, Warrington, and Blackburn.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 19·3 and 19·0 per 1000 in the two preceding weeks, further declined to 16·4 per 1000 during the week ending June 21st, but showed an excess of 1·5 per 1000 over the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 12·6 in Leith and 13·5 in Dundee, to 18·1 in Glasgow and 19·2 in Paisley. The 531 deaths in these towns included 18 which were referred to measles, 17 to diarrhœa, 13 to whooping-cough, four to scarlet fever, two to diphtheria, and not one to either small-pox or "fever." In all 54 deaths resulted from these principal zymotic diseases in the week, against 57, 61, and 68 in the three preceding weeks. These 54 deaths were equal to an annual rate of 1·7 per 1000, which was also the death-rate in the week from the same diseases in the 76 large English towns. The fatal cases of measles, which had been 13, 22, and 18 in the three preceding weeks, were again 18 in the week, and included seven in Glasgow, four in Edinburgh, four in Paisley, and two in Perth. The deaths from diarrhœa, which had been 15, 16, and 18 in the three preceding weeks, declined again to 17, of which 13 were registered in Glasgow. The fatal cases of whooping-cough, which had been 15 and 21 in the two preceding weeks, declined again to 13, and included four in Glasgow, three in Edinburgh, two in Aberdeen, two in Paisley, and two in Perth. The four deaths from scarlet fever corresponded with the number in the preceding week, while the fatal cases of diphtheria showed a slight decline from recent weekly numbers. The deaths referred to diseases of the respiratory organs in these towns, which had been 116 and 129 in the two preceding weeks, declined again to 96, but were slightly above the number in the corresponding period of last year. The causes of 26 or nearly 5 per cent., of the deaths registered in these eight towns were not certified

The annual rate of mortality in the eight Scotch towns, which had been 19·3, 19·0, and 16·4 per 1000 in the three preceding weeks, rose again to 19·2 per 1000 during the week ending June 28th, and showed an excess of 4·1 per 1000 over the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 15·9 in Leith and 17·8 in Aberdeen to 25·8 in Greenock and 29·7 in Perth. The 620 deaths in these towns included 16 which resulted from diarrhœa, 15 from measles, 14 from whooping-cough, four from scarlet fever, four from diphtheria, and four from "fever." In all 57 deaths resulted from these principal infectious diseases last week, against 68 and 54 in the two preceding weeks. These 87 deaths were equal to an annual rate of 1·8 per 1000, which was slightly above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of diarrhœa, which had been 13 and 17 in the two preceding weeks, further declined last week to 16, of which seven occurred in Glasgow, four in Edinburgh, and four in Aberdeen. The deaths from measles, which had been 18 in each of the two preceding weeks, decreased to 15 last week, and included six in Edinburgh, three in Glasgow, three in Paisley, and two in Dundee. The fatal cases of whooping-cough, which had been 21 and 13 in the two preceding weeks, rose again last week to 14, of which four were registered in Edinburgh, three in Glasgow, two in Aberdeen, two in Paisley, and two in Perth. The deaths from scarlet fever, which had been four in each of the two preceding weeks, were again four last week, and all occurred in Glasgow. The four fatal cases of diphtheria were slightly in excess of the numbers recorded in recent weeks, and included two in Edinburgh, where two of the four deaths from "fever" also occurred. The deaths referred to diseases of the respiratory organs in these towns, which had been 129 and 96 in the two preceding weeks, rose again last week to 101 and were slightly in excess of the number in the corresponding period of last year. The causes of 24, or nearly 4 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 22·3, 19·8, and 19·7 per 1000 in the three preceding weeks, further declined to 17·9 per 1000 during the week ending June 21st. During the previous four weeks the death-rate had averaged 19·9 per 1000, the rates during the same period being 15·0 in London and 17·5 in Edinburgh. The 130 deaths of persons belonging to Dublin registered during the week under notice showed a decline of 13 from the number in the preceding week and included eight which were referred to the principal zymotic diseases, against eight, six, and 10 in the three preceding weeks; of these, five resulted from measles, one each from scarlet fever, from diphtheria, and from "fever," and not one from either small-pox, whooping-cough, or diarrhœa. These eight deaths were equal to an annual rate of 1·1 per 1000, the death-rates from the same causes in the week being 1·8 in London and 1·5 in Edinburgh. The fatal cases of measles, which had been two, three, and four in the three preceding weeks, further rose in the week to five; while the mortality from diphtheria and that from "fever" corresponded in each case with that recorded in the preceding week. The 130 deaths in Dublin in the week included 25 of children under one year of age and 33 of persons aged upwards of 60 years; the deaths of infants showed a slight decline, while those of elderly persons were in excess of the number recorded in the preceding week. Four inquest cases and two deaths from violence were registered; and 51, or nearly two-fifths, of the deaths occurred in public institutions. The causes of four, or more than 3 per cent., of the deaths registered in Dublin were not certified.

The death-rate in Dublin, which had declined from 22·3 to 17·9 per 1000 in the four preceding weeks, rose again to 19·9 per 1000 during the week ending June 28th. During the 13 weeks of the quarter ending on that date the death-rate averaged 22·7 per 1000, the rates during the same period being 16·1 in London and 18·3 in Edinburgh. The 145 deaths of persons belonging to Dublin registered during the week under notice were 15 in excess of the number in the preceding week, and included nine which were referred to the principal infectious diseases, against six, 10, and eight in the three preceding weeks; of these, four resulted from "fever," three from measles, two from scarlet fever, and not one from either small-pox, diphtheria, whooping-cough, or diarrhœa. These nine deaths were equal to an annual rate of 1·2 per 1000, the death-rate last week from the same diseases being 1·6 in London and 2·9 in Edinburgh. The fatal cases of "fever," which had been one in each of the two preceding weeks, increased last week to four; while

the deaths from measles decreased from five in the preceding week to three last week. The 145 deaths in Dublin included 29 of children under one year of age and 30 of persons aged upwards of 60 years; the deaths of infants slightly exceeded the number in the preceding week, while those of elderly persons showed a decline. Three inquest cases and four deaths from violence were registered; and 53, or more than a third, of the deaths occurred in public institutions. The causes of 11, or more than 7 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

THE CORONATION HONOURS.

To be Knight Commander of St. Michael and St. George.

Surgeon-General H. H. Pinching, Head of the Sanitary Department at Cairo.

To be Knights Commanders of the Bath.

Inspector-General of Hospitals and Fleets John Denis Macdonald, R.N. (retired).

Surgeon-General John Andrew Woolfryes, C.B., C.M.G., honorary physician to the King.

Surgeon-General Annesley Charles Castriot de Renzy, C.B., I.M.S. (retired).

Surgeon-General (ranking as Lieutenant-General) William Taylor, C.B., honorary physician to the King.

To be Companions of the Bath.

Lieutenant-Colonel Patrick Fenelon O'Connor, I.M.S.

Fleet-Surgeon James Porter, R.N.

Inspector-General of Hospitals and Fleets, Duncan Hilston, R.N. (retired).

Inspector-General of Hospitals and Fleets, Robert Grant, R.N.

Lieutenant-Colonel Sir James Richardson Andrew Clark, Bart. (Brevet Major), R.A.M.C. (Medical Staff Corps) (Militia).

Lieutenant-Colonel George Thomas Beatson (Medical Staff Corps), the Glasgow Companies, R.A.M.C. (Volunteers)

To be Companion of the Indian Empire.

Lieutenant-Colonel T. E. L. Bate, I.M.S.

SOUTH AFRICAN LIST.

The King has also been graciously pleased to give orders for the following appointments to the undermentioned officers and soldiers in recognition of their services during the operations in South Africa.

To be Companions of the Bath.

Colonel J. D. Edge, R.A.M.C.

Lieutenant-Colonel W. A. May, R.A.M.C.

Lieutenant-Colonel R. V. Kelly, New South Wales Medical Corps.

Veterinary-Lieutenant-Colonel T. Flintoff, Army Veterinary Department.

Lieutenant-Colonel Henry James McLaughlin, Reserve of Officers (late R.A.M.C.).

Lieutenant-Colonel C. E. Nichol, R.A.M.C.

Major H. N. Thompson, R.A.M.C.

Major W. H. W. Elliot, I.M.S.

Captain G. Leslie, Medical Officer.

To have the Honorary Rank of Captain.

Quartermaster and Hon. Lieutenant J. B. Short, R.A.M.C.

Quartermaster and Hon. Lieutenant A. Freshwater, R.A.M.C. (since deceased).

To be Companion of St. Michael and St. George.

Mr. A. L. Langman, jun., Langman's Hospital.

To have the Decoration of the Royal Red Cross.

Superintendent Miss E. M. Chadwick, Army Nursing Service (with hospital ship *Maine*).

Nursing Sister Miss M. C. S. Knox, Army Nursing Service.

Nursing Sister Miss Elizabeth Cochrane Shannon, Army Nursing Service Reserve, with Scottish National Hospital.

Miss H. Hogarth, Army Nursing Service Reserve, hospital ship *Princess of Wales*.

Mrs. George Cornwallis-West, hospital ship *Maine*.

Mrs. Theodosia Bagot, Portland Hospital.

Mrs. T. C. Wolley Dod, Mrs. Keith, and Miss Knight, care of prisoners of war, Pretoria.

Miss Frances Amelia Lowrie, Matron, Bourke Hospital, Pretoria.

Mrs. P. H. Johnston, President, Army Hospital Aid Society, Natal.

Miss Ada Whiteman, Maritzburg, and Leper Hospital, Pretoria.

Miss Lucy Alice Yeatman, Colonial Nurse, Ladysmith.

Mrs. Melina Rorke, Colonial Nurse, Bulawayo.

Mrs. Redpath, Colonial Nurse, Ladysmith.

Mrs. Jessie Burrill and Mrs. Emma Francis, Durban Women's Patriotic League.

Mrs. Jane Waterston and Mrs. Sclater, Good Hope Society, Natal.

Georgina, Dowager Countess of Dudley.

Miss Ethel McCaul.

Mrs. Kilpin and Mrs. Ball, Good Hope Society.

To be enrolled as Honorary Associates of the Grand Priory of the Order of the Hospital of St. John of Jerusalem.

Miss Martha Thomson, Miss Sarah Emily Webb, Miss Sarah Elizabeth Oram, Superintendents; and Miss Louisa Watson Tulloh, Nursing Sister, Army Nursing Service.

The notification regarding the above four ladies which appeared in the *London Gazette* of Sept. 27th, 1901, is hereby cancelled.

To be enrolled as an Honorary Associate of the Grand Priory of the Order of the Hospital of St. John of Jerusalem:—Miss Mary Cecil Florence Kate Cole, Superintendent, Army Nursing Service.

The King has also been graciously pleased to give directions for the following appointments in recognition of services in this country, the Mediterranean, and the Channel Islands during the operations in South Africa.

To be Companions of St. Michael and St. George.

Lieutenant-Colonel Henry Charlesworth, R.A.M.C.

Major William Grant Macpherson, R.A.M.C.

KAISAR-I HIND MEDAL FOR PUBLIC SERVICE IN INDIA.

Captain T. W. A. Fullerton, I.M.S., and Lieutenant-Colonel J. L. Poynder, I.M.S., have been granted the gold medal.

ROYAL NAVY MEDICAL SERVICE.

Deputy Inspector-General (retired) J. Lyon to be Surgeon and Agent at Manchester. Staff Surgeons: A. M. Page to the *Hood* and J. Parry to the *Australia*. Surgeons: H. C. Arathoon to Haslar Hospital and H. W. M. Rees to the *Vivid*.

ROYAL ARMY MEDICAL CORPS.

Surgeon-General G. J. H. Evatt, A.M.S., Principal Medical Officer, Western District, has been appointed Principal Medical Officer, 2nd Army Corps, but will continue for the present to hold his position in the Western District in addition to his other duties.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant Neish Park Watt, Forth Division Submarine Miners, Royal Engineers (Volunteers), to be Surgeon-Lieutenant.

VOLUNTEER CORPS.

Rifle: 2nd Volunteer Battalion the Durham Light Infantry: Surgeon-Lieutenant G. Stephen to be Surgeon-Captain.

VOLUNTEER INFANTRY BRIGADE BEARER COMPANY.

East Surrey: Surgeon-Major J. J. de Z. Marshall, from the 3rd Volunteer Battalion the East Surrey Regiment, to be Surgeon-Major and to command under paragraph 55A Volunteer Regulations.

SOUTH AFRICAN NOTES.

Civil Surgeons Francis, Alban, and Boyd are on passage home from South Africa.

Civil Surgeon Clarke is progressing favourably.

THE TITLES OF VOLUNTEER MEDICAL OFFICERS.

In a letter from the War Office dated June 25th, 1902, in answer to a communication from the Volunteer Medical Association, it is stated that "Mr. Brodrick notes that it is the opinion of the council of the Volunteer Medical Association that there is no inclination among senior medical officers of volunteer infantry brigades to drop the word 'brigade' in the title brigade-surgeon-lieutenant-colonel. With reference to the recommendation of the council that the rank of colonel (or surgeon-colonel) may be granted after 24 years

service it is pointed out that no position exists in the volunteer forces in which a medical officer of that rank could be employed, the highest being a senior medical officer of a brigade with the rank of brigade-surgeon-lieutenant-colonel. Mr. Brodrick regrets, therefore, that he is unable to give his assent to this proposal. He has, however, already approved of this rank being conferred as an honorary distinction on retirement and the necessary alterations will appear in the next revise of the Volunteer Regulations. It is by no means certain that all brigade-surgeons desire to be seconded. Many probably prefer to belong to the battalion with which they have been associated. The seconding of these officers has been made optional and the Secretary of State sees no reason to make it compulsory. ..... The question of the granting of simple military titles to the executive officers of brigade bearer companies has already been under consideration and the decision will be notified in due course. It must, however, be distinctly understood that any change that may be authorised will only affect officers who are gazetted to a bearer company either direct or from a regiment or corps, and not regimental medical officers. Officers joining or rejoining a regiment or corps from a bearer company will assume the compound title, as is the custom among the regimental officers of the brigade of Guards. The claims of medical officers to participate with other officers of volunteers in rewards or distinctions of an honorary nature have not been overlooked, and the council of the Volunteer Medical Association may be assured that this subject will receive full consideration."

WAR GRATUITY.

According to the Special Army Order recently published by the War Office July 31st has been fixed upon for the general issue of the war gratuity for South Africa. The gratuity for the China campaign of 1900 is administered by the India Office, to which department all applications should be addressed on the part of those resident in this country who are entitled to it.

THE ARMY MEDICAL SERVICES IN INDIA.

The establishment of an Ambulance Bearer Corps for India together with a hospital train service and a considerable increase to the nursing service of that country are measures which will, it is understood, find a place among other things in the forthcoming Indian Army Estimates.

DEATHS IN THE SERVICES.

Hon. Deputy Surgeon-General Nicholas Ffolliott, A.M.D. (retired) aged 71 years, on June 27th, at his residence in London. He entered the service in 1862, and served in the Afghan War of 1878–80 (medal), retiring in 1889.

THE KEYHAM NAVAL HOSPITAL.

The hospital recently erected at the north-east end of the Royal Naval Barracks, Keyham, Plymouth, at a cost of £7500, is to have a new wing added, so that when completed the building will have 100 beds.

Correspondence.

"Audi alteram partem."

PERITYPHLITIS.

To the Editors of THE LANCET.

SIRS,—When will surgeons cease to proclaim to the world their ignorance of the existence of the above-named disease until operative means were first used for its cure and it then appeared in surgical works under the name of "appendicitis"? Otherwise it has been known and recognised ever since I entered the profession more than 50 years ago. I have already been obliged to state this in your journal together with references to support me. At the present time, being away from a medical library, I must be content by saying that a description of the disease may be found in Bristowe's "Treatise," in Reynolds's "System" and Tanner's "Practice of Medicine," and in other works, amongst these being my own lectures on Pathology, published in the year 1859. But I can go back still further and mention a description of the disease which has never been surpassed. I must first say, however, that when I attended Addison's course in 1843 he described typhlitis, or cæcitis, in regular order, and he must have done the same for some years, since the substance of his lectures was published in 1836. Addison continued for many years to give these lectures and those who followed him always gave perityphlitis in their course. Gull was well acquainted with it. For half a century or more to my knowledge a description of the disease came into the systematic course, besides being often commented upon in clinical lectures. It therefore follows that at least 100 students every year were instructed as to the nature of this disease during this half-century. It might have been the same at other schools; certainly it was at St. Thomas's.

Addison's account is to be found in a volume entitled Bright and Addison's "Elements of the Practice of Medicine." I venture to assert that very little has been added since to his description of the disease except that which relates to bacteria and, of course, surgical treatment. The only novelty at the present time appears to be the word "appendicitis," an uncouth and improper expression, since all writers of authority have maintained that the nomenclature of disease should be clinical and not pathological, and this for the obvious reason that the latter implies a positive knowledge at which we cannot often arrive. Already the use of the modern word has been the cause of many wrong diagnoses even if the surgeon covers up his mistake by adopting such an absurd expression as pseudo-appendicitis. One may now hope that the use of the older and better expression in the case of an illustrious patient may be generally followed. It is not only a more correct appellation for any case to which a medical man may be called but it may enable him to seek in the right direction for a history of the disease.

I am, Sirs, yours faithfully,

June 30th, 1902. SAMUEL WILKS

To the Editors of THE LANCET.

SIRS,—Allow me at the present moment to recall attention to the seemingly first recorded operation for perityphlitic abscess in the Transactions of the Medico-Chirurgical Society of London for the year 1832, performed, I believe, by Dr. John Burns, who recognised well the import of the same in surgery and would have operated earlier in the case; and, furthermore, to the start given to the procedure as well as to its timely performance by Dr. Willard Parker in 1868 after a successful operation in Manhattan.

I am, Sirs, yours faithfully,

Berlin, June 28th, 1902. W. YEOMANS COWL, M.D.

A BLOOD COUNT IN A CASE OF HYDATID DISEASE OF THE LIVER.

To the Editors of THE LANCET.

SIRS,—Now that blood examinations are becoming recognised as valuable aids in the diagnosis of abdominal cases perhaps you will permit me to record, as an addition to the paper by Dr. C. G. Seligmann and Mr. L. S. Dudgeon in THE LANCET of June 21st, p. 1765, the result of a blood count which I recently made in a case of hydatid cyst of the liver in a male, aged 35 years. There was some irregular pyrexia. The blood count was as follows: red, 3,880,000; and white, 18,440. The polymorphonuclears amounted to 78·4 per cent., lymphocytes to 11·2 per cent., hyalines to 9·0 per cent., and eosinophiles to 1·4 per cent.

A fatal termination prevented further investigation of this case. The differential count does not at first sight show any marked eosinophilia, but taken in conjunction with the total leucocyte count there is obviously an absolute increase. For taking the normal eosinophile count as 2 per cent. in a leucocytosis of 6000 we find the absolute number of eosinophiles to be about 120 per cubic millimetre, whereas in the count above cited the absolute count is about 250 per cubic millimetre, or over double the normal.

Apropos of the subject of eosinophilia I might refer to a case which presented the clinical picture of, and probably was, tuberculous peritonitis. The blood count in this case was as follows: reds, 4,800,000; and whites, 12,400. The polymorphonuclears amounted to 54 per cent., lymphocytes to 31·8 per cent., hyalines to 7·4 per cent., and eosinophiles to 6·8 per cent. This count represents an eosinophilia seven times as great as the normal of 120 per cubic millimetre. Being at a loss to account for the condition I consulted my friend Mr. Otto Grünbaum who suggested the possibility of an intestinal parasite. A watch was therefore kept upon the

motions and was soon rewarded by the passage of a large ascaris lumbricoides.

I am, Sirs, yours faithfully,

C. J. NEPEAN LONGRIDGE.

St. George's Hospital, S.W., June 21st.

ENTERIC FEVER.

To the Editors of THE LANCET.

SIRS,—I have just read with much interest the Milroy Lectures,[1] together with the discussion at the Epidemiological Society on April 24th, 1900, and having had some experience of enteric fever I thought that you might allow me to make a few observations on its infectivity. In the year 1878 two sisters employed in the laundry of the Homerton Fever Hospital contracted enteric fever. Their special duty was to wash the "soiled" linen, a work in which they had been engaged for about two years without contracting any illness of any kind. They would in the performance of their duty have their hands very considerably soiled by the morbid material on the linen and if, as has been long ago suggested, they had been in the habit of biting their nails or eating with unwashed hands they must have absorbed a not inconsiderable quantity of it. Whether or not they did so may be open to a little doubt, but of the fact that during those two years they were free from any recognisable illness there is no doubt whatever.

On March 22nd, 1878, the brother of the younger sister's "young man" was admitted to the hospital with enteric fever, of which he became dangerously ill, and this younger sister more or less frequently visited him. On or about April 28th she began to be ill and on May 12th was sent to an enteric fever ward the subject of enteric fever. The elder sister visited the younger daily and on July 30th was sent to an enteric fever ward the subject of enteric fever of about 10 days' duration.

He must be *fort sur ses principes* who can mistake the obvious meaning of facts like these, and they may be found in abundance in the papers of physicians from Piedvache (1850) to Goodall and others (1902).

I am, Sirs, yours faithfully,

June 22nd, 1902. ALEXANDER COLLIE.

WHAT IS SCROFULA?

To the Editors of THE LANCET.

SIRS,—The objections raised by your correspondent "Pes" in THE LANCET of May 24th (p. 1498) and June 21st (p. 1799) in regard to the action of the Superintendent of Statistics in the General Register Office in retaining the term "scrofula" in his list of causes of death are, I venture to think, neither courteously set forth nor justifiable. It is surely unseemly to attack a public official of the acknowledged eminence of Dr. J. F. W. Tatham in such a manner and under the shelter of anonymity, and the case is not made better if it should happen that the assertions so confidently expressed are not proved to be in accordance with actual facts.

Your correspondent has evidently adopted the modern doctrine that all that was formerly regarded by the best clinical observers as indicative of a scrofulous or strumous habit of body is now, in the light of Koch's researches, to be considered as distinct proof or evidence of tuberculous invasion or influence. This view has, I regret to find, been rather widely adopted, especially by surgeons, but it cannot be regarded as adequate to meet the stern facts of clinical experience.

I discussed this question of the relation of tuberculosis to scrofula in an address delivered last October in Liverpool. This was published in THE LANCET of Nov. 9th, 1901, p. 1250, and again at greater length in the *Liverpool Medico-Chirurgical Journal* for March, 1902. I maintained that the strumous habit of body should be regarded as presenting a peculiar condition of tissue proclivity, one sensitive and vulnerable to irritants of all kinds and specially prone to harbour and foster the bacillus of tubercle. I maintained, further, that it was not inevitable for a scrofulous subject to become tuberculised and that such an individual might, and, indeed, often did remain free from manifest tuberculosis throughout life. I quoted, and denied, Osler's statement to the effect that "scrofula is tubercle, as it has been shown that the bacillus of Koch is the essential element," but stated my agreement with him when he went on to remark: "After all, as Virchow pointed out, an increased vulnerability of the tissue, however brought about, is the important factor in the disease."

We are not warranted in believing that all the ailments of the scrofulous subject are indicative of, and dependent upon, tuberculosis. No one, for example, would rightly regard the disorder known as ciliary blepharitis as a tuberculous condition, though instances of it are common enough in scrofulous children.

I am unable to follow your correspondent in his criticism of the terms "tubercular" and "tuberculous," but Dr. Tatham's use of the latter may safely be defended if etymology or morbid anatomy are in question.

I, therefore, entirely support the view taken by the authorities of the General Register Office, and am content, in the face of all that Koch has taught us, the value of which cannot be too highly appreciated, to hold with Watson, Paget, Simon, and many other clinical masters, that there is a condition of body to which the term "scrofula" is properly applicable. Inflammatory and other disorders are apt to assume a special type in scrofulous subjects, and this tendency modifies only too gravely many of these. Our duty to-day is to place Koch's discovery in its due relation to this diathetic strumous proclivity and not to displace all the older views in regard to this matter. Scrofula is not tuberculosis and tuberculosis is not scrofula, and if anyone were absolutely to affirm the contrary I should venture to regard him as but slenderly equipped with true clinical instincts. The modern views in question are the progeny of the pathological laboratory. They neither emanate from, nor are they chastened by, the discipline of the bedside.

I am, Sirs, yours faithfully,

June 23rd, 1902. DYCE DUCKWORTH.

THE SEED AND THE SOIL.

To the Editors of THE LANCET.

SIRS,—The tenour of the admirable and statesman-like lectures recently delivered on "The Seed and the Soil" tend to make it appear that this question of "soil" is a new view in the elucidation of the causation of disease. But I would point out that this question of the necessity of suitability of soil was the constant contention of Lawson Tait more than a quarter of a century ago. In his persistent opposition to the teaching of Lister—that great man who has brought such honour to the House of Peers by his promotion to the peerage, who in future generations will take his rank in medicine with Hunter and Jenner, in religion with Luther, in teaching with Arnold, in science with Newton and Kelvin, in literature with Shakespeare, and in politics with Gladstone—his contention was that Lister's far-reaching researches, however true, only revealed half the truth. For he contested in no measured terms that it was immaterial how many millions of germs entered a wound provided no suitable soil were permitted for their germination.

When, if ever, the life and work of Lawson Tait comes to be written it will be manifest to generations to come—when all his asperities, his failings, and his heinous faults are forgotten—that Lawson Tait's great work in the surgery of the abdomen holds the highest place in the annals of the surgery of the latter half of the nineteenth century. It was he who taught the profession the marvellous feats that could be performed in abdominal surgery and which have since borne fruit beyond his wildest expectations. His greatness will live when his littleness is forgotten.

I am, Sirs, yours faithfully,

Rugby, June 26th, 1902. CLEMENT DUKES.

THE MEDICAL SERVICE OF THE MERCHANT MARINE.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of June 28th, p. 1857, Dr. W. T. Burres of the R.M.S. *Peru* (or should it be *Para?*) complains bitterly of the inadequate pay of ships' surgeons. I have been in the service of the very same company to which Dr. Burres belongs and consequently can speak with a certain amount of authority. Whilst in thorough accordance with your correspondent on the general principle that medical men should uphold the dignity of their profession by insisting upon proper remuneration

[1] THE LANCET, March 22nd (p. 783) and April 5th (p. 942), 12th (p. 1013), and 26th (p. 1155), and May 3rd (p. 1231), 1902.

and recognition, I am compelled to say that in the particular instances he cites (ship and hospital practice) his arguments are somewhat puerile. Ships' surgeons are derived mainly from two classes: firstly, young men freshly qualified who, perhaps, are somewhat run down from hard reading and who in any case seize the opportunity of their irresponsible position to see the world at the expense of some shipping company; and, secondly, practitioners of some years' standing who, owing to ill-health, are obliged temporarily to give up their work on shore and who go to sea to recuperate. The majority of seagoing surgeons remain in the same company for a few voyages only. Surely they cannot expect to receive £300 or even £200 a year where there is no fixity of tenure on their side. And even if the first-named salary were offered, what surgeon worthy of the title would be content to laze away his life on board ship, where the opportunities of following up his profession are so few and the limitations to its practice so many? Your correspondent delicately remarks that many ships' surgeons are "scabs." The query is obvious.

Most companies offer £10 a month to their prospective surgeons. At first sight the remuneration does not appear peculiarly generous; but consider the accompanying advantages—a free passage to some of the most interesting parts of the globe, social intercourse with people of all classes, nations, and opinions, a cuisine rivalling that of a first-class hotel, an assured social position (if the individual can maintain it), and, lastly—if one can call it an advantage—very little to do. Furthermore, few men leave the mercantile service without having supplemented their income with private fees which they are allowed to receive but not to *demand*. I need not refer to the question of hospital surgeons, the same law of compensating advantages applies.

I am, Sirs, yours faithfully,
F. B. RYAN, M.B. R.U.I.,
Late Royal Mail Service.

June 29th, 1902.

A NEW METHOD OF KEEPING IN APPOSITION THE EDGES OF SURGICAL INCISIONS AND WOUNDS IN ORDER TO PROMOTE UNION.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of June 28th, p. 1839, is described a new method of keeping in apposition the edges of surgical incisions and wounds in order to promote union. The idea is not new, any more than the inventive plagiarism, unconscious or otherwise. If you will look back to your own esteemed pages of Sept. 27th, 1884, you will see that Messrs. Arnold and Sons made a similar suture for me; you will see that mine is a step further towards perfection, as a matter of fact, necessarily an evolution of that now described, which latter I found painful and inefficient and requiring, indeed, considerable energy to introduce, as must be so with sewing-needle points and arms of equal length. Who are the "surgeons of highest rank" who recommend this suture? There are other very valuable modes of closing wounds not used for some reason or other. The following is one I often used. Take one or more couple or couples of curved surgical needles; thread them in couples. Introduce *along* each side of the wound, bring the points to the necessary extent together (to close the wound), fix them by a piece of cork or indiarubber, bring the eye ends together to an equal extent, and tie the thread.

I am, Sirs, yours faithfully,
JAMES MACMUNN.

Finsbury Pavement, E.C., June 29th, 1902.

MOTOR CARS FOR MEDICAL MEN.

To the Editors of THE LANCET.

SIRS,—Frequent inquiries have been made through your journal for information respecting a trustworthy and simple car and price within reach of the general practitioner. I am running a car now which meets these requirements. The car is built by the Pick Motor Co., Limited, Stamford, is of British workmanship throughout, and can be seen built in every stage at the works. My car is a 6 h.p. voiturette, double cylinder, two speeds, belt driven (Dicks), which are inclosed in case and protected from wet and dirt; when the bonnet is off the whole engine is *in situ* and the parts are easily got at, and the mechanism is so simple that anyone with ordinary knowledge can put it right. Another advantage is that you can easily get duplicates of any of the parts, as this is a standard type of car for which there is a demand. One coil with a trembler is only necessary for the two cylinders. I can get up to 32 miles per hour speed and most hills can be climbed on the fast speed; in fact, I have had to use the low speed very little. Having seen a large number of cars of different types I do not know of one that can touch it for workmanship and reliability. The price of my car complete is £150.

Any tyre can be put on. I know none equal to the Goodrich single tube.

I am, Sirs, yours faithfully,
H. T. BENSON, J.P., L.R.C.P. Lond., &c.,
Member of the Lincolnshire Automobile Club.

Market Deeping, June 21st, 1902.

THE RECONSTITUTION OF THE BRITISH MEDICAL ASSOCIATION.

To the Editors of THE LANCET.

SIRS,—I shall be glad if you will kindly allow me to intimate to your readers that there will be a meeting of those members of the Association interested in the report on Tuesday night, July 8th, at 8.30, in the St. Martin's Town Hall, London.—I am, Sirs, yours faithfully,

JAS BRASSEY BRIERLEY.

ADMINISTRATION OF CHLOROFORM FROM A CLOVER INHALER.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of June 21st, p. 1779, Mr. F. Victor Millward, in describing his ingenious combination of two Clover inhalers, states that he considers it possible to administer chloroform alone from the inhaler after removal of the bag, but has not made trial of this method. That this is quite feasible I pointed out in a letter to your columns of Feb. 9th, 1901, p. 434. Since that date I have almost invariably administered chloroform from a Clover inhaler, minus the bag, of either the ordinary or large-bore type and I find this method a great improvement on the frequent bottle-tilting or ball-squeezing inseparable from the open and Junker methods and as safe a method as is possible when chloroform is the anæsthetic. The large bore, although of service in administering ether, gives no additional advantage when the anæsthetic is chloroform, for which the ordinary bore is ample.

I am, Sirs, yours faithfully,
C. HAMILTON WHITEFORD.

Plymouth, June 21st, 1901.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

Instructions concerning Electric Wire Accidents.—The Plague Epidemic and the Famine.—The Natives of India and Cigarette Smoking.—The Value of Indian Opium.

IN consequence of accidents from electric wires in Calcutta I understand that a committee consisting of ambulance lecturers and electrical engineers has been formed and that it has drawn up the following simple instructions for the police and the public.

ACCIDENTS WITH ELECTRIC WIRES.

Notice.—The thick trolley wires over the tramway lines and the electric light wires are the dangerous wires. The other wires in the street are harmless so long as they do not touch the above wires but if they be broken and fall on and touch the above wires they then also become dangerous.

Instructions.—If a wire falls harmlessly leave it alone but prevent anyone from touching it. If the end hangs loose or the wire is an obstruction it may be pulled on one side by means of a stick or piece of rope and may be tied by means of string or rope out of the way but it must on no account be touched with the bare hands. If it be necessary to use the hands they must be covered with a very thick dry cloth. In moving a wire great care must be taken that it does not touch any other wire. Never stand on a fallen wire. The constable must not leave his post until the wires have been made safe. If a wire falls on a person and winds round him or becomes entangled in the clothing the wire should be pulled away with a stick or by wrapping the hands in a thick dry cloth. Great care must be taken that the wire does not touch the bare skin of the person or that of the rescuer.

Injuries.—A person injured by a fallen or broken electric wire may receive an electric shock, may be burnt, may be cut by the wire, or may be knocked down.

First aid treatment.—If any wire be touching the injured person it must first of all be removed as above directed. If the person be severely cut by the wire, or burnt, or otherwise severely injured but remains conscious he may be removed to the hospital. If apparently dead the person should be laid flat on his back with the head low and "artificial respiration" should be immediately resorted to and should be kept up until medical assistance arrives. The limbs may also be rubbed and cold water may be applied to the head, but no stimulants of any kind should be administered.

The plague epidemic is rapidly declining. This week only 4214 deaths have been recorded, as against 5498 during the previous seven days. For the corresponding week last year only 1658 deaths were returned from plague. The details are: Bombay city, 166; Bombay districts, 260; Karachi, 59; Madras Presidency, 16; Calcutta, 132; Bengal, 107; United Provinces, 116; the Punjab, 3226; Mysore, 116; and Kashmir, 15. The famine is still further spreading. An increase of 9000 in the number of those under relief has taken place and the total now stands at 457,750.

Cigarette smoking seems to have taken hold of the natives of India. There has been a very large increase in imported tobacco chiefly in the form of cigarettes. The weight of cigarettes imported has been considerably over 1,000,000 pounds. These have come chiefly from the United States and Great Britain. It is common now to see natives smoking American cigarettes and boxes of them are being regularly hawked about the towns.

Certain recent schemes concerning the opium traffic in China give special interest to the peculiarities of Indian opium. It is said that the high value of Indian opium—viz., about three times the cost of its production, is due to its mildness when smoked and that it contains a low proportion of morphine as compared with the Turkish variety.

June 7th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Manchester Royal Infirmary.

THE report of the board of management of the Manchester Royal Infirmary recommending that the infirmary should be rebuilt on the present site has been issued and a special general meeting of the trustees is to be held on July 22nd "to receive, consider, and, if approved, to adopt," the same and to authorise the board to proceed with the work of reconstruction. The need for enlargement may be illustrated by a conversation that took place at the meeting of the board of guardians on June 23rd. It was stated that a man who had been injured was refused admittance for lack of room and was sent to the Crumpsall workhouse hospital. The view of the chairman of the guardians and others of the board seemed to be that beds should be reserved for cases of exigency, as, indeed, they are, and one of the guardians asked: "If the Royal Infirmary is not to receive poor people, what does it exist for?" forgetting, apparently, that the reserve beds may all have been filled. It was so in this case, as appears from the answer to a letter from the guardians, which said that "the whole of the beds, including those reserved for emergencies, had been filled," and the patient had been sent to the Crumpsall hospital contrary to all intention, through an oversight of one of the resident officers. It goes on to say that "such regrettable cases afford further evidence of the necessity for the proposed enlargement of the hospital." According to the proposed plans the beds for patients will be increased from 292 to 452 at an estimated cost of £200,000. As one of the local papers puts it, the battle of the sites is over and as no millionaire has come forward to help the city to purchase the infirmary area the idea of a superb art gallery and reference library on the Piccadilly site, with a modernised infirmary near the Owens College, must be abandoned. Millionaires unfortunately do not seem to be "kept in stock." It is felt by many to be a misfortune that for an indefinite future the principal hospital of Manchester will be fixed in the centre of a dense town, on a cramped and insufficient area, surrounded on all sides by streets dusty and noisy with never-ceasing traffic, and penetrated from time to time with fog the pungency of which is most irritating and injurious. But though this is so all credit must be given for a sincere and strenuous effort to meet what seems an unfortunate necessity.

The Infirmary and the late Dr. Leech.

At the close of the ordinary business yesterday the board of the Manchester Royal Infirmary received a deputation of medical men from the Leech Memorial Committee asking them to accept a portrait of the late Dr. Daniel J. Leech similar to one recently presented to the Owens College. The deputation consisted of Mr. Walter Whitehead, Dr. J. Dreschfeld, Mr. Joseph Collier, Dr. A. Hill Griffith, Dr. Judson S. Bury, and Dr. E. M. Brockbank. Mr. Whitehead said that he had been asked to make the presentation because he had known Dr. Leech longer and more intimately, perhaps, than any one present. They were fellow-students and elected to the staff of the infirmary on the same day. He spoke truly and generously of Dr. Leech's self-sacrifice for the sake of medical education and the public welfare, of his devotion to work, of his simplicity of character and his candour. "Few persons," he said, "are aware how much he did to help on the careers of medical students who were crippled in funds and who but for his generosity would have had to suspend their medical education." As Mr. Whitehead said, in asking the board to accept the portrait, it can, however excellent, "but inadequately represent to future generations the noble and unselfish life of the late Dr. Leech." Sir F. Forbes Adam, chairman of the board, said that he accepted on behalf of the board of the infirmary, with very great pleasure indeed, the replica of the portrait of the late Dr. Leech and he paid a high tribute to his character and the great services that he had rendered to the infirmary.

Royal Infirmary Appointments.

At the meeting of the board of management of the Manchester Royal Infirmary yesterday, Sir F. Forbes Adam presiding, Dr. W. S. V. Stock was re-appointed resident medical officer for a year from July 8th and Dr. H. B. Wyman was appointed assistant medical officer at Cheadle for a year.

A Manchester University.

The Convocation of Victoria University, consisting of graduates, discussed the question of separate universities for Manchester, Liverpool, and Leeds, at a meeting held on June 23rd at Owens College. The attendance was large and a long debate took place, after which Professor Tait's resolution was passed:—

That under existing circumstances Convocation is of opinion that the cause of higher education and the interests of the constituent colleges of the University will best be served by the adoption of the course recommended by the University Court.

This course was, it may be remembered, that of disruption. The resolution was carried by 137 votes to 87. The discussion was marked by a good deal of animation and the philosophic doubts, on one side or the other, were not always expressed without acrimony. The presence of lady graduates did not quite avail to "soothe the savage breasts," for when one lady "proceeded to speak at length" against disruption, in seconding an amendment moved by Professor Smithells, she was met by cries of "Vote" and "Time," and "she had great difficulty in continuing her remarks," so that another lady graduate observed reprovingly: "These are university manners." Perhaps it may be hoped that in time this feminine influence may soften the ruggedness of northern culture. So far as public opinion can be judged by the leaderettes in the two chief Manchester papers it is in favour of an independent as against a federal university, but the question would probably have remained dormant, so far as Manchester and Leeds are concerned, had not Liverpool first felt the stirrings of ambition. Whether the cause of higher education and the interests of the constituent colleges will be best served by federation or disruption the future may determine. Able men hold opposite views, but it would be difficult, if not impossible, for Owens College, whatever the result may be, not to take up the challenge of Liverpool. It may seem ungracious that Leeds should be, as it were, cast off against her will, but she has energy enough to face the future without fear.

Salford Sewage Works.

One is almost weary of the "adjourned actions" brought by the Mersey and Irwell Joint Committee against the corporations of Manchester and Salford for their delinquencies as regards sewage purification. At the last hearing, however, on June 23rd, his Honour Judge Parry was able to congratulate Salford on the great progress that had taken place since his last visit to the works. Mr. Strachan, the consulting engineer, thought that 12 months ought to be allowed

for the completion of the present scheme for the treatment of the sewage. The effluent, he said, was now satisfactory, but he would like to see the filter at work for three months before giving a final opinion. His Honour said that it would remain to be seen whether the actual number of filters when completed would be sufficient for the needs of the neighbourhood, and attention should be given as to how far the present provision would be sufficient for future needs. There seems hope, therefore, that Salford may overcome its sewage difficulties.

County Constabulary and Charities.

The Bury division of the Lancashire County Constabulary held its annual sports recently and devoted the profits, amounting to £107 7*s.* 9*d.*, to various charities. The Bury Infirmary receives £45, the Ramsbottom Cottage Hospital £10, and three sick nursing associations £10 each. There are also donations to the Society for the Prevention of Cruelty to Children and the Society for the Prevention of Cruelty to Animals, to the Police Orphanage, Harrogate, and to the police poor-box. This is a good example, and might, perhaps, be followed more frequently than it is by the cricket and football clubs whose matches are watched by thousands.

July 1st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

University of Dublin.

A MEETING of the Senate of the University of Dublin was held on June 30th to elect a member of the council for "Classis Tertia." Professor Edward Hallaran Bennett was unanimously elected.

Death of John Harrison Scott, M.B. Dub., F.R.C.S. Irel.

The death is announced at the early age of 40 years of Dr. John Harrison Scott, formerly of Fitzwilliam-square, Dublin. Dr. Scott was in bad health for some years but was formerly well known in medical circles in Dublin where he filled the posts of surgeon to the Adelaide Hospital and of medical officer to St. James's Gate Brewery and other important appointments.

Vacant Chairs in Queen's College, Belfast.

The Dunville professorship of physiology and the chair of natural history in Queen's College, Belfast, are both vacant and the appointments rest with the Crown. Candidates must send their applications to the Under Secretary to the Lord Lieutenant of Ireland, Dublin Castle, on or before July 5th. The endowment of the chair of physiology is £250 and the class fees in the session 1900–1901 (the last reported) were £308, while the endowment of the professorship of natural history is £282 and the class fees for 1900–1901 were £190. It should be added that both of the former professors in these subjects held examinerships in the Royal University, which increased the value of their annual incomes.

Scale of Fees in Irish Dispensary Practice.

It has been decided to appeal in the case of Mr. J. W. Olpherts (medical officer of Downpatrick Dispensary District) *v.* Downpatrick Union, against the decision of the county-court judge to the effect that the scale of fees for extra-professional assistance fixed by a board of guardians and sanctioned by the Local Government Board cannot be exceeded even though the medical practitioner concerned had not agreed to the scale and had stated when his services were requisitioned what his fee would be. The Irish Medical Association is anxious that every effort should be made to obtain a reversal of this decision which affects every medical practitioner in Ireland, whether in the Poor-law service or not. The Irish Medical Association will bear the costs in this appeal case.

The Royal University Commission.

Mr. F. H. O'Donnell, M.A. (a Royal University graduate), has published a letter with statements in reference to his treatment when on May 22nd he tendered himself for examination before the Royal Commission on University Education in Ireland, which certainly demands an early and full explanation. He denies the correctness of the official report of his appearance which has been sent to him, and publishes a corrected report of what took place which he has sent to the secretary of the commission. When he informed the Commissioners on appearing before them that he had 20 pages of notes on very important points and that he was prepared to read them or speak from them (the usual course adopted by witnesses) the chairman, Mr. O'Donnell writes, said: "The commission does not think it necessary, we have your book and the summary of your evidence, and I do not think we need trouble you further." On Mr. O'Donnell protesting against being suppressed, he was silenced by the commission, the chairman exclaiming: "Call the next witness. Call the Lord Chief Justice." The publication of this letter of Mr. O'Donnell has produced a bad impression. The newspapers are asking why in the first place did the commission decide to ignore Mr. O'Donnell's offer to give evidence, a course it persisted in for a long time. Was it owing to public press criticism that it afterwards agreed to hear him, and having done so, why did it decide when it allowed him to appear before it that he should not be permitted to say anything?

Small-pox in Belfast.

Only one new case of small-pox has been admitted into the Union Fever Hospital, Belfast—that of a man who had been in several lodging houses and who had spent during the period of incubation a few days in the Royal Victoria Hospital as he was suffering from hæmorrhoids. It was fortunate that no surgical operation was done, as shortly after leaving the hospital the rash of small-pox appeared.—The new hospital, erected in a period of 20 days at Purdysburn by the public health committee, has been completed and is now ready for patients. The hospital, a one-storeyed one, is built of wood and iron with a corrugated iron sheeting and has been constructed for 32 patients. It consists of four large wards. The most complete arrangements have been made in connexion with ventilation, heating, bath, and sanitary arrangements. There is an excellent administrative block with nine rooms for the medical officers and nurses who have charge of the patients. It is connected with the hospital by a covered passage 100 feet long by four feet in breadth. At a radius of 100 feet from the buildings strong corrugated ironwork is being put up and a small mortuary has also been constructed apart from the main building. This new small-pox hospital, complete in every respect, is a great addition to the medical institutions of Belfast. Unfortunately the residents around Purdysburn object to its location there very strongly and have held a public meeting and again protested on the ground that it was too near (nearer than the regulations of the English Local Government Board would permit) to a public school and to other houses in the neighbourhood. Mr. T. W. Russell, M.P., has asked a question in the House of Commons on the subject.

Royal University Graduates' Association.

The third annual meeting of the Royal University Graduates' Association, a body embracing 600 graduates representing all professions (clerical, medical, legal, engineering, and teaching) was held in Belfast on June 28th. From the report (presented by Dr. R. W. Leslie, one of the secretaries) and the speech of the chairman (Dr. W. A. McKeown) who is the president of the association, it appears that the association is in a most flourishing condition. Special reference was made to the sittings of the University Commission (and the council of the association believes that the case for the establishment of sectarian and petty universities in Ireland has been damaged past hope of recovery); to the victory achieved by the association in the recent election of representatives on the Senate of the Royal University, all pledged to the appointment of extern examiners; to the refusal of the commission to hear Mr. F. H. O'Donnell, M.A.; and to the policy of the association in reference to the university question, which is, first, reorganisation of the Royal University on an academic representative basis and the abolition of Crown nominations, and, secondly, the severance of the connexion of the Crown with the Queen's Colleges and their government by a body representing various and local academic interests. Dr. McKeown was unanimously re-elected president of the association for the ensuing year.

July 2nd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Scandals at the Competition for the Post of Hospital Physician.

THE scandals at the yearly competitions offered by the administration of the Assistance Publique for the post of

hospital physician or surgeon grow worse and worse and are the subject of much comment even in circles outside the medical profession. Only a month ago there was a scandal of which I have already spoken.[1] The recent competition for the posts to be occupied by six physicians has been marked by most regrettable incidents which have naturally been made much of in the lay press. These incidents were such that two members of the jury, M. Albert Robin and M. Henri Huchard, wrote a strong letter of protest to the Director of the Assistance Publique which appeared in the public press. On Saturday, June 14th, when the results were published and before the successful candidates had been nominated M. Robin and M. Landrieux sent in their resignations. M. Huchard had already sent in his. All these scandals have been the cause of acute comment among the public, although they cause no surprise in medical circles, where the undesirable methods which obtain in the public competitions have been long known. The hospital physicians and surgeons as a body are annoyed at the action taken by three of their members, and at the meeting of the Hospitals Medical Society which followed on the competition the reception of M. Robin and M. Huchard was very cool. As, however, both of these gentlemen are of considerable scientific eminence they are indifferent to this action and their bold, independent attitude is most favourably commented on by the great body of medical men as a step towards the reform of the present methods in vogue in public competitions.

Alcoholic Drinks.

About a year ago, in the course of a Parliamentary discussion upon the law as to drinks, a Socialist deputy, Dr. Vaillant, proposed that the Academy of Medicine should be requested to make out a list of alcoholic drinks, such as liqueurs, apéritifs, and the like, which contain essences dangerous to public health, with a view to interdict the manufacture or sale of such. As the Minister concerned did not accede to this request the Academy has at last sent into Parliament a report on its own account. M. Laborde has published the report in the name of the commission appointed by the Academy. The report states that the essences used are very poisonous. Synthetic essence of anisette contains a quantity of hydrocyanic acid. The inhalation of a little of this essence from an open bottle containing it causes grave syncope and a feeling of illness lasting for several days. Chartreuse is very poisonous and contains 13 substances which can bring about serious effects. Vulnerary contains 15 very poisonous substances. The genuine vegetable essences are bad enough, but these are not used now and the essences are all made with synthetic flavourings which are even more poisonous than the genuine vegetable essences. Gin (*genièvre*) contains a poison and bitters are also very dangerous. M. Laborde proposes that the sale of the following should be absolutely forbidden except for medicinal use: absinthe and its compounds, bitters, vermouth, noyeau, chartreuse, gin, and vulnerary. It is proposed that the authorities shall forbid the manufacture or sale of these drinks as containing substances harmful to public health. If this is not done the laws existing on the matter should be rigorously applied.

The Physiological Education of Deaf-mutes.

At the meeting of the Academy of Medicine held on July 17th M. Laborde gave an account of the method employed by M. Dussaud in the education of deaf-mutes. M. Laborde showed a number of patients in whom M. Dussaud's method had brought about excellent results. The principles are as follows: the child at the age when speech would normally begin to develop is put through a series of exercises addressed to the ear with a view to developing the auditory function, the coöperation of which is, at the outset at least, necessary for the acquirement of speech. He uses an apparatus devised by himself for amplifying sounds called the *amplificateur audiométrique*. It is a kind of loud-speaking phonograph. It is of great value, especially at the beginning of the educational course, to make use of musical sounds as well as spoken sounds. M. Laborde showed nine children who had been enabled to speak by means of this method.

Apparatus for Anæsthesia.

At the meeting of the Therapeutic Society held on May 28th M. de Crésantignes showed an apparatus for administering volatile anæsthetic agents such as the bromide or chloride of ethyl. The apparatus consists of a mask which hermetically seals the mouth and nose of the patient. This mask leads into a vessel which collects the air expired by the patient and by sinking in at the moment of inspiration returns it to him. Thus no loss of anæsthetic occurs and the patient gets no air which is not saturated by the anæsthetic. Owing to this there is no period of excitability.

A New School of Hygiene.

The municipality of Marseilles has just concluded some negotiations with the Minister of War with regard to the creation of a school of colonial hygiene at Marseilles. The municipality has offered to place at the disposal of the Minister the left wing of the Pharo together with certain of the surrounding buildings. When the school is fitted up there will be accommodation for 100 pupils. The municipality has further promised to bear the cost of the work necessary for getting the buildings ready for occupation, which will amount to about 150,000 francs. This sum will include the cost of a new block and the doing up of rooms to serve as class-rooms together with a theatre for lectures and demonstrations.

July 1st.

[1] THE LANCET, May 31st, 1902, p. 1568.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Statistics of Hay Fever.

DR. THOST, a specialist in nasal and laryngeal diseases in Hamburg, has been carrying out a collective investigation into hay fever and its causes. The investigation includes 400 cases partly from his own practice and partly collected among the members of the Hay Fever League, an association of sufferers from hay fever from Germany, Austria, Holland, and Switzerland who in May and June every year meet at Heligoland and patronise any research into the etiology and therapy of this disease. Dr. Thost's report, which is published in the *Münchener Medicinische Wochenschrift*, states that to produce hay fever in a person three things are necessary: a specific cause, a local disposition of the mucous membrane of the nose and the respiratory organs, and a general disposition of the nervous system. As to the specific causes it was found by the statements of the patients that hay fever was brought on by grass flowers in 89 cases, by pollen in 61 cases, by hay in 32 cases, by lawns in 18 cases, by flower-dust in 59 cases, by the smell of flowers in 17 cases, by flowering plants, bushes, and trees in 30 cases, and by corn-flowers, cornflour, and cornfields in 32 cases. Many patients had an idiosyncrasy with regard to certain flowers; one patient was attacked by hay fever in winter time because he had cultivated hyacinths in his room. Apart from flowers and their pollen the following causes were said to produce attacks of hay fever: dust in 86 cases and smoke, stone dust, and flour dust once, respectively; bad smells in 10 cases, tobacco-smoke in 13 cases, smell of horses twice, and a draught of air in seven cases. A railway journey is given as the exciting cause in 56 instances; sunlight, 69 times; heat, 43 times; dry air, 18 times; bad air, five times; change of temperature, 13 times; fog, once; a stay in fresh air, 16 times. Other less frequent causes are mental work, muscular strain, and drinking; eight patients said that their attacks were due to neurasthenia, and one patient even said that the attacks occurred when she thought of hay fever, whilst in another case an attack happened when the patient thought of a cornfield. Of still more peculiar causes one patient may be mentioned who was attacked by the disease when he combed his hair, another when covered by woollen textures, a third by furs, and a fourth when cats were in his room. It is, however, remarkable that only three patients alleged "catching cold" to be the cause of the illness. Pollen is generally believed to contain the irritant agent by which the fits are produced. A great many examinations of the nasal mucosa, however, showed that pollen grains were present in the nasal mucus in a few instances only; one patient even reported that he was able to snuff plenty of pollen without catching hay fever; on the other hand, it was rather striking that so many patients accused the smell of certain flowers as producing the fits, so that possibly a volatile agent may be the cause. As to the nature of the disease being eventually discovered to be parasitic the bacteriological examination of the nasal mucus performed at the Hamburg Hygienic

Institute showed a white staphylococcus, which was present in hay fever patients exclusively; this staphylococcus accordingly was inoculated on the mucous membrane of some medical men who agreed to this experiment but the results were negative. Concerning the local disposition it was found that the majority of patients previously to their having caught the disease had suffered from catarrhal affections of the nose and the respiratory organs and that a great irritability of the olfactory organs was present. As to the general disposition it has been known for a long time that peasants though very much exposed to the above-mentioned alleged exciting causes are seldom attacked, while inhabitants of the great towns often are. As a rule the patients belong to the upper classes and those engaged in mental work are specially liable. Dr. Thost's statistics, indeed, show that a great number of patients belong to learned professions. Sometimes the first fit occurred immediately after a great mental strain or over-exertion; sometimes as a sequel to some exhausting disease, such as scarlet fever or diphtheria. Gout, which in England is alleged to be connected with hay fever, was found to be present in 30 out of 400 cases only. Hay fever having increased during the last years Dr. Thost suggests that there may be eventually a connexion with influenza, this suggestion being confirmed by the fact that 187 of the patients had suffered from this disease. As to the symptoms the statistical research showed that 266 patients were affected with real asthmatic fits, 134 with catarrhal symptoms only, and that about 75 per cent. besides complained of general uneasiness. Dr. Thost finally gives a report of the therapeutic measures and states that there is no safe cure for the disease in every case; the Hay Fever League recommends snuffing tobacco; some cases were benefited by cauterisation of the nasal mucosa, others by the local application of narcotic compounds, others by the administration of iodine, quinine, &c. There exists only one remedy against hay fever—namely, the stay in a place without vegetation; for Germany the island of Heligoland, where members of the league are accustomed to stay in the spring, is especially suitable.

The Struggle against Venereal Diseases.

As already announced in these columns[1] a German Society for the Repression of Venereal Disease is in course of formation. A provisional committee, consisting of Dr. Blaschko of Berlin, Professor Neisser of Breslau, Professor Lesser of Berlin, Dr. Galswoky of Dresden, Professor Wolff of Strasburg, and Professor Kirchner of Berlin, has issued letters to the medical profession, to the committees of sick clubs, philanthropic societies, insurance companies, &c., to invite them to become members and to make known the objects of the society. The letter is signed by the above executive committee and also by about 200 medical men and others and even by some philanthropic ladies. It is said in the letter that tuberculosis, alcoholism, and syphilis are the three scourges of the human race; tuberculosis and alcoholism have begun to be combated on a large scale by the united efforts of both medical and lay circles; as to syphilis nothing of the kind hitherto has been done. The result is that the frequency of venereal diseases, their dangers, their spread, and the means of prophylaxis, are unknown to all except the medical profession. Besides, mistaken ideas of modesty oppose public discussion of these questions and any enlightenment of people and thus aid the spread of syphilis. Although the total abolishment of prostitution is not possible at present, there is nevertheless a good deal to be done in diminishing the injury done to the health of the entire nation by this plague. The new society will follow the example of, and be in connexion with, the Société Internationale de Prophylaxie Sanitaire et Morale founded in 1899 at Brussels. It will try to gain as many members as possible from all classes of society and public meetings will be held, addresses delivered, and popular essays distributed concerning sexual hygiene; moreover, the society will try to induce the Government and Parliament to alter the laws on prostitution, on the exclusion of venereal patients from relief by sick clubs, &c. The meeting to constitute the society will be convoked this autumn at Berlin.

Statistics of the Prussian Universities.

At the 10 universities of Prussia 17,880 students have matriculated for the summer semester. Berlin has 5676, Bonn 2091, Breslau 1827, Halle 1727, Göttingen 1371, Marburg 1382, Kiel 1156, Königsberg 968, Münster 877, and Greifswald 825 students. The greatest number (7679) belong to the philosophical faculty, next comes the legal faculty with 5053, the medical faculty with 2928, and the theological faculties (both the Protestant and Roman Catholic) with 1289 and 941 students respectively. The medical students are distributed as follows: Berlin, 1018; Kiel, 439; Greifswald, 237; Bonn, 235; Breslau, 228; Marburg, 210; Königsberg, 201; Halle, 198; and Göttingen, 162. 657 ladies are admitted to the lectures at the universities, their regular matriculation being at present impossible under the university by-laws of Prussia. In Berlin there are 370, in Bonn 106, in Breslau 65, in Göttingen 38, in Königsberg 36, in Halle 28, in Kiel 10, and in Marburg 4 lady students respectively. The number of foreign students is 1440, of whom 888 are matriculated at Berlin, 162 at Halle, 89 at Göttingen, 88 at Marburg, 63 at Bonn, 62 at Königsberg, 47 at Breslau, 25 at Greifswald, and 16 at Kiel. Of the 888 foreigners of Berlin University 323 are Russian, 102 Austrian, 66 Swiss, 47 Hungarian, 36 British, 20 Bulgarian, 17 French and Roumanian respectively, 15 Italian, 15 Scandinavian, 15 Greek, 14 Servian, 11 Turkish, 10 Luxemburgian, 7 Dutch and Belgian respectively, 3 Spanish, and 2 Danish; 103 come from America, 52 from Asia, 2 from Australia, and 1 from Africa.

Dues payable to the Medical Chambers.

The law empowering the medical chambers to impose certain dues on the medical men of each district does not commend itself to those members of the profession who are not engaged in practice but devote themselves exclusively to scientific pursuits. It will be remembered[1] that some months ago the medical men holding appointments in the laboratories and other scientific departments of the University of Berlin petitioned their medical chamber to exempt them from this taxation, but their petition was unanimously rejected. Another class of medical men who complain loudly of the taxation are those who, being qualified practitioners, have either taken up some other profession or else live on their income without engaging in practice. The law makes no provision for their exemption either from taxation or from the jurisdiction of the courts of honour, so that it is within the limits of possibility that a man who holds a qualification to practise medicine but nevertheless follows some totally different occupation may become answerable to the court of honour of his district for some act that he has committed. Such a case, it is true, has not yet occurred in actual fact, but if it did the medical chambers might find themselves in the dilemma of having to adjudicate upon questions with which they had no competent acquaintance. A discussion took place recently in the Prussian Herrenhaus (House of Lords) relative to the liability of holders of medical qualifications to pay dues to the medical chambers in the cases where such qualifications were to all intents and purposes inoperative through their holders not practising. It was introduced by Dr. Freiherr von Lucius, the holder of a medical qualification and formerly Minister of Agriculture; he proposed an alteration in the law relative to the medical chambers so that only medical men in actual practice should be required to pay dues, and that only incomes derived from medical practice and not from other sources should be liable to assessment. The Minister of Education, whose department includes matters bearing on the medical profession, remarked on the inadvisability of making alterations in a statute of such recent date, but said that the provincial authorities who have the supervision of the medical chambers had been requested to induce the chambers to grant a reduction of 50 per cent. on the dues payable by holders of qualifications who are not engaged in practice. The periodical press, both medical and non-medical, have in this connexion directed attention to the fact that the law contains no provision by virtue of which the holder of a medical qualification can succeed in divesting himself of the position and responsibilities of a member of the medical profession. In the legal profession the case is otherwise, for a lawyer is at liberty to make a declaration that he no longer desires to remain on the register, and on the removal of his name from the register he ceases to come under the jurisdiction of the legal chamber. An alteration in this sense is obviously required in the laws affecting the medical profession.

June 30th.

[1] THE LANCET, May 24th, 1902, p. 1505.

[1] THE LANCET, Jan. 25th, 1902, p. 268.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Spitting in the Street and Public Places Forbidden.

THE New York City Board of Health has amended its regulations so that spitting upon the side walks and upon the floors of public buildings, the halls of tenement houses, hotels, and lodging-houses, theatres, halls, and other places or buildings in which there are public assemblages, and upon the station platforms or stairs of elevated or steam railroads, ferry-houses, or ferry-boats, is now unlawful. This action was taken as the result of a communication from Dr. Herman H. Biggs, the medical officer, who says that he believes that the time has now arrived when the provisions of this section should be extended so as to include side-walks, halls of tenement houses, stations, and platforms of steam railroads, and all other buildings in which there are public assemblages. He asserts that the grave feature of this pollution of public places of assembly and public conveyances is the inevitable transportation of this always objectionable and frequently dangerous material on the footwear and on the clothing, and particularly the skirts of women, into private houses, where in the absence of the most perfect system of ventilation and cleansing it is a constant menace to the welfare of the occupants, whose attempts to maintain salubrious conditions in their homes are rendered in an important particular futile through the vicious practices of others in public places.

Enforcing Payment for Medical Services to Patients in Hospitals.

Dr. George R. Fowler of Brooklyn, who is attached to the Brooklyn, Seney, and German hospitals in the capacity of chief visiting surgeon, has brought suit against a number of persons who have received professional services at his hands and who have refused to pay on the ground that they are charity patients. This suit is brought with the hope that it may bring to a stop the alleged imposing upon physicians and hospitals by persons who are able to pay for their treatment. Dr. Fowler says that these are test cases by which he hopes to vindicate a principle that is abused in every hospital. For years certain persons have imposed upon physicians and hospitals by claiming that they are too poor to pay for dangerous and skilful operations. The practice became so general that he commenced an investigation and found that the suspicions were correct; feeling that his professional services and skill were worth something he remitted bills to those whom he found well able to pay, and in some of these cases the life of the patient had been saved. He also felt that the profession at large ought to put a stop to this systematic imposition upon them by a class of people posing as too poor to pay for benefits received; many of these proved to be far better off than those unfortunate people for whom the hospitals are maintained in their free departments. These suits have been sustained by the courts.

The Value of the Identification of Criminals.

The Bertillon system of identifying criminals as used in the State prisons of New York is shown by Mr. C. V. Collins, superintendent of State prisons, in his last annual report. As an aid to its maturely framed system of prison administration and criminal supervision the State established in 1888, and still maintains, a Bertillon system of identification of criminals, which is the largest in America and is undoubtedly the most perfectly equipped one in the world. This bureau contains 43,000 cards, each representing a criminal who has been confined in one of the penal institutions in this State at some period since 1896. It also contains 1289 cards received from the penal institutions of other States during the year just passed. Since September, 1900, it has been the central bureau both for the penal institutions of the State and for those also of 17 other States and of Canada. It is believed that the records of a majority of the persistent criminals of this State are now on file in this bureau, and as the cards from other States increase in number the scope of observation and detection will be gradually enlarged, and in the course of a few years the bureau will be in a position to furnish the records of nearly all of the professional criminals on this continent. The State is not, however, receiving the full benefit which it might from this bureau, because few of the police departments of our cities and none of the county sheriffs have the equipment necessary for measuring, photographing, and describing criminals arrested by them. The efficiency of the system is shown by the fact that by its use 2438 criminals have been identified in the five years that it has been in operation in the State of New York.

The American Congress on Tuberculosis.

The third annual meeting of the American Congress of Tuberculosis and the Medico-Legal Society was held on June 2nd, 3rd, and 4th, at the Hotel Majestic, New York City. A large number of delegates were present from the United States, as well as representatives of Canada, Mexico, and Central and South America. The Government of the United States was represented by officers of the army, navy, and Marine Hospital Service. The presidential address was delivered by Dr. Henry D. Holton of Vermont. The first discussion was on "Preventive Legislation," and a motion was adopted declaring it to be the duty of every government, municipality, and individual citizen to adopt organised measures for lessening the spread of a disease which was causing directly or indirectly probably one-fifth of the total deaths in almost every country of the world. Dr. L. L. Kinyoun opened the discussion on Bacteriology and Pathology and expressed the belief that bovine and human tuberculosis were interchangeable. He said that notwithstanding the long years of bacteriological research no serum had been discovered which would neutralise the tubercle bacillus and the disinfection of the patient's surroundings remained the most important precaution. Dr. H. Edwin Lewis read a paper on the Importance of Individual Predisposition in the Development of Tuberculosis. He disagreed to some extent with the views expressed by Dr. Kinyoun and pointed out that attendants in tuberculous hospitals rarely contracted the disease through infection. He was of the opinion that personal resistance to the bacillus was to be strengthened by better habits of living rather than by sanitary precautions. Dr. William S. Macgill of the Carnegie Laboratory asserted that the popular belief that bacterial virulence was the chief cause of tuberculosis was an error. The present contradictory state of opinion he attributed to the unsatisfactory results of laboratory experiment, which had been directed toward the destruction of tubercle bacillus, while the true cause of tuberculosis seemed to be a higher form of micro-organism. The closing session of the meeting was the most instructive and interesting. The subject discussed was the "Veterinary Aspects of Tuberculosis." Dr. Adami, the well-known Professor of Pathology at McGill University, Montreal, opened the discussion in a very eloquent speech, the first part of which dealt with tuberculosis of cattle from a commercial standpoint. He said: "Is the existence of tuberculosis among livestock a menace to that industry in this country? Undoubtedly it is, and that not so much because here in America the herds are already extensively affected as because of its great tendency to spread. Nevertheless, in the Eastern States its ravages are already serious enough. .... With cattle, as with man, it may be laid down that the more the existence is indoors, the less life is led in the open-air, the more susceptible are the individuals to this disease. There have been numerous instances in the Eastern States in which every member of a dairy herd has been found to be a victim of tuberculosis. On the other hand, the Western ranch herds, which live almost entirely, if not wholly, in the open, are with rare exceptions exempt. It may be asked why, if bovine tuberculosis has been known for centuries, it is only of late that it has spread to such an alarming extent. The answer would seem clearly to be that the spread is coincident with the greater development of the cattle industry, and especially of the case of transportation. In the old days the movement of cattle was as nothing compared to what it has become during the past 70 years; it is the frequent interchange of beasts and frequent introduction of new and tainted animals into the herds that has wrought the damage, a subsidiary influence being undoubtedly the general attempt to improve the milk-giving qualities by the introduction of highly bred and at the same time highly susceptible animals. It is to the commercial and monetary significance of this spread that I would specially draw attention. Affecting the livestock and industry it affects what is far and away the greatest industry of the country. Only two-fifths of the population of the United States live in towns of 25,000 inhabitants, or more than three-fifths gain their living from the soil. The invested capital in the live stock industry exceeds that of

any other in this country. What I wish you to consider is the enormous loss that would accrue to this country with its millions of cattle if only 1 per cent. of the animals slaughtered were the victims of advanced tuberculosis." The prospective loss is so great that this is immediately seen to be a national concern. Professor Adami thinks that the time to act is before the disease gets "out of hand"; he is of the opinion that everything points to the fact that taken in time the eradication of tuberculosis from a herd or from a district need not be a costly matter either for the individual or for the community. More particularly, he says, the employment of Bang's method of isolation of reacting animals affords us a means of rendering a herd wholly free from disease in the course of from three to five years. Dr. Adami's views expressed the general attitude of the congress.

June 22nd.

Obituary.

† JOHN WICHENFORD WASHBOURN, C.M.G., M.D., F.R.C.P. LOND., F.R.C.S. ENG.,

PHYSICIAN TO GUY'S HOSPITAL AND TO THE LONDON FEVER HOSPITAL.

DR. JOHN WICHENFORD WASHBOURN, C.M.G., who died at Tunbridge Wells on June 20th, was the younger son of the late William Washbourn of Gloucester and traced his descent through the Washbourns of Washborne and Wichenford, Worcestershire, to the Sir Roger Washbourn mentioned by the Heralds in their Visitation of Worcestershire in 1370. After a long and arduous winter's work, during which every spare moment was devoted to experimental research in preparation for the Croonian lectures of the Royal College of Physicians of London (which he was to have delivered this month), Dr. Washbourn was seized with an attack of influenza which at first appeared to be no more serious than any of the many mild attacks from which he had suffered in recent years, and, in fact, at the end of a week, throughout which he had pursued his usual occupations, he expressed himself as almost well. At this stage, however, a sudden rigor warned him of the necessity for caution. He at once took to bed and some 10 days later a collection of serous fluid was removed from the right pleural cavity—a proceeding which was twice repeated. At one time he appeared to be gaining ground, but the improvement was transitory, and about ten weeks from the commencement of his illness it was decided to try the effect of change. He was accordingly removed to Tunbridge Wells, but a week later the diagnosis of miliary tuberculosis was made, which disease proved fatal in another fortnight, just two days before his thirty-ninth birthday.

Born at Gloucester in 1863, he was educated at King's College Gloucester, Guy's Hospital, the University of Vienna, and the University of Königsberg. His student career at Guy's from his entry in 1880 was an exceptionally brilliant one, his enthusiasm for the profession he had adopted and his boundless capacity for work at once marking him as a student of the highest promise. At the Intermediate M.B. examination of the London University in 1883 he gained the gold medal and exhibition in chemistry, and at the Final M.B. examination in 1886 the University scholarship and medal in medicine and the gold medal in forensic medicine, together with honours in the B.S. He took the Membership of the Royal College of Surgeons of England in 1885 and the Fellowship in 1888; the Membership of the Royal College of Physicians of London followed in 1889 and he was elected to the Fellowship in 1894. In 1888 he was appointed demonstrator of anatomy at Guy's Hospital, in 1889 assistant physician to the London Fever Hospital, in 1890 assistant physician to Guy's Hospital, to the duties of which was added the charge of the electrical department, full physician to the London Fever Hospital in 1892, and joint lecturer in Physiology to Guy's Hospital in 1891. In 1890 he instituted and organised the bacteriological department of Guy's Hospital, to which he was appointed lecturer in 1898. He married, in 1893, Nellie Florence, daughter of the late Mr. William Freeland Card, of Greenwich Hospital School; a year later, however, he sustained a heavy blow in the death of his wife, leaving him with an infant daughter. In February, 1900, he proceeded to South Africa, and from that date to June, 1901, he was consulting physician to the Imperial Yeomanry Hospital, first at Deelfontein and afterwards at Pretoria. He was gazetted C.M.G. in 1900, and consulting physician to His Majesty's forces in South Africa in 1901. Immediately after his return from South Africa he filled the presidential chair in the Section of Pathology and Bacteriology at the annual meeting of the British Medical Association, and his opening address, dealing in a masterly manner with the infective diseases prevalent in the South African army will be fresh in the memory of all who were present on that occasion.

During the last five or six years Dr. Washbourn was actively engaged in consulting work, and although the success which he had already attained augured well for the future, still he was perhaps more widely known by his brilliant work as a bacteriologist. In the early part of 1888 he worked under Professor von Baumgarten in the University of Königsberg, and in 1890 he commenced, in association with Professor Gruber of Vienna, those exact researches into the etiology and pathology of pneumonia which were carried on uninterruptedly until the commencement of his fatal illness and which have rendered his name familiar throughout the scientific world. His contributions to the life-history of the pneumococcus, either alone or in conjunction with workers trained by himself and enlisted in the work, were many and important, the chief of which were an examination of the varieties of the diplococcus pneumoniæ and the evolution of an extremely ingenious method of accurately estimating their virulence; whilst as the result of his work in this direction he was enabled, after many unsuccessful attempts, to obtain from horses an anti-pneumococcic serum of such high potency that he was encouraged to employ it therapeutically in the treatment of cases of acute pneumonia. He recorded the results in the *British Medical Journal*, February, 1897, some months before Pané of Naples independently published details of an anti-pneumococcic serum prepared from donkeys and goats. Although the result of the therapeutic use of Washbourn's anti-pneumococcic serum was not an unqualified success, it was so encouraging that we have no hesitation in saying that his death materially delays the advent of a potent remedial agent in pneumonic processes. But his work was by no means confined to this one subject. On the introduction of anti-diphtheritic serum he at once commenced an investigation into its clinical applications and the communication of his results to the Clinical Society of London in 1894 (in conjunction with Dr. E. W. Goodall and Mr. A. H. Card) drew from the presidential chair a warm commendation of their value and helpfulness, and there is no doubt did much to encourage the employment of the antitoxin in cases of diphtheria.

In the field of preventive medicine Washbourn will be chiefly remembered on account of the part which he played in the elucidation of the causation of the Maidstone typhoid fever epidemic of 1897, when he was called in to advise the local authorities. The result of his bacteriological examinations of the various sources of the local water-supply and the inferences which he drew therefrom, proved beyond doubt that the pollution had occurred in the Tutsham-in-Field spring; and that the action taken by the local authorities upon his recommendation was fully justified was borne out by the result no less than by the verdict of the subsequent Local Government Board inquiry. Washbourn was an ideal research worker, possessed of an infinite capacity for taking pains and a keenly critical appreciation of the relative value of his results, tempered with a healthy scepticism which refused to believe even the apparently obvious until the accumulation of confirmatory proof became so strong as to render that attitude of disbelief no longer tenable. As a result his work has stood and will continue to stand; in no single instance has Washbourn been forced to contradict or to modify any of the statements or views that he had once put forward. As a teacher and lecturer he has left his mark upon each of the departments of Guy's Hospital and its medical school with which he has been successively connected. The anatomical, physiological, and bacteriological departments of the school and the wards and electrical department of the hospital have all benefited by his powers of organisation and his keen insight into the requirements and the needs of the present-day medical student. He was deservedly popular with his colleagues and equally so with the students, with whom his interest in their sports and amusements created another strong bond of fellowship. As a man he was a staunch friend and a strong partisan, and at the same time a fair and considerate

opponent. In the field of controversy, as in social life, he commanded the respect and esteem of all his fellows; whilst in those with whom he was brought in contact in daily life his personal characteristics and utter neglect of self inspired an affectionate regard and love which makes each one look upon his death as causing a heavy, personal bereavement. His opinion and advice were constantly being sought by all who knew him and it may be said truthfully that none went empty away, sound practical advice and kindly words of encouragement tiding many a man over some critical period. His death will be most keenly felt, not only amongst those who knew him best, but throughout the entire world of medicine and science. That so brilliant a career, and one so full of the brightest promise, should have been cut short at the early age of 39 years hardly seems in accordance with the eternal fitness of things, but those who are left behind to mourn that loss can have no higher ideal than the attempt to attain the high standard of personal and intellectual rectitude which he has set.

PROFESSOR ADOLF KUSSMAUL.

OUR Berlin correspondent writes:—Professor Adolf Kussmaul, who died not long ago at Heidelberg, was the oldest and one of the most celebrated clinical teachers of Germany. Although it is now some years since he retired from his official duties on the ground of his advanced age (he was more than 80 years old) he nevertheless continued to work up to the very close of his life through unwillingness to disappoint the numerous applicants for his advice. Professor Kussmaul's career presented some unusual features. His early life has been admirably described by himself in his interesting work, "Jugenderrinerungen eines Alten Aerztes ("Memoirs of an Old Physician"), a book valuable for the accounts which it gives of the university and medical life of that day. The son of a country practitioner whose family connexions were of the peasant class he early in life became acquainted with the hardships of country practice but was not thereby deterred from following in his father's steps. While a student at Heidelberg University he published a physiological prize essay, its subject being the Sensibility of the Retina. At that time the importance of pathological anatomy was beginning to be understood by the medical profession and on the completion of his curriculum Kussmaul attended the lectures of Professor von Rokitansky in Vienna and Professor Oppolzer in Prague. On his return home he became a surgeon in the Baden army and when he retired from the service in 1849 he settled as a country practitioner in the little village of Kaudern in the Baden highlands. The work in this mountainous district was carried on under considerable difficulties for some years, until in 1854 he contracted spinal meningitis with total paralysis of the lower extremities, the cause of the attack probably being over-exertion. He fortunately recovered, although his symptoms were for a time most critical, but he felt himself unequal to the fatigues of country practice. He was now 32 years of age and was, of course, qualified as a practitioner, but he made up his mind to resume medical study and matriculated as a student at Würzburg University, with the view of increasing the knowledge of pathological anatomy which he had acquired in Vienna and Prague. Two of his teachers at Würzburg—namely, Professor Virchow and Professor Kölliker—are still alive. A year later he took the degree of M.D. at Würzburg University and in 1856 he returned to Heidelberg where he was recognised as a *privat-docent*. In 1857 he was promoted to be extraordinary professor and in 1859 he was appointed ordinary professor at the University of Erlangen. In 1863 he left Erlangen for Freiburg and remained there until 1876, when he was invited to fill the chair of clinical medicine at Strassburg University, in succession to Professor von Leyden. His practice as a consultant was very extensive in Freiburg and was increased in Strassburg. During this period he published the results of his scientific researches in a great many books and essays. In 1888 he resigned his appointment and retired to Heidelberg where he spent the remainder of his life and where last winter his eightieth birthday was celebrated with much enthusiasm by members of the university, his professional brethren, many of his patients, and the townspeople in general. The municipality of Heidelberg presented him with the freedom of the city, the Grand Duke of Baden granted him the title of Real-Privy Councillor, and many other honours were conferred on him. The wide range of his knowledge enabled him to work in almost every branch of medicine. In general pathology he published essays on the influence of the circulation on the temperature of the ear in rabbits and on the origin of epileptoid convulsions in acute anæmia. Pathological anatomy was represented by his works on congenital anomalies of the uterus and on post-mortem rigidity. His principal works in clinical medicine were: "On the Treatment of Dilatation of the Stomach by means of the Stomach-pump" and "On Paracentesis in Pleurisy." His essay "On the Psychology of Newly-born Children" and his well-known treatise "On Disorders of Speech" belong to neurology. Professor Kussmaul was of a kindly and amiable disposition which gained him many friends and has caused his death to be widely regretted.

THOMAS JAMES WOODHOUSE, M.D. LOND., F.R.C.S. ENG.

PUTNEY has recently lost through death a highly-esteemed inhabitant in the person of Dr. Thomas James Woodhouse of Amboise, Rusholme-road, Putney. The deceased was well known in the parish and was greatly respected by all who came in contact with him, while to those who were closely associated with him he proved a valued and never-failing friend. He died on June 11th, after a short illness extending over only a few days. He commenced his career as a student at St. Thomas's Hospital and in 1865 graduated M.D. of London, having in 1860 obtained the diploma of F.R.C.S. Eng. He bought a practice at Fulham, where he lived at Ranelagh Lodge for several years. He was greatly interested in archæological subjects and assisted in the restoration of Fulham Church. In 1864 he wrote a book on the epitaphs within and without Fulham Church, and also prepared a paper on the monuments and tombs there. This he read at a meeting of the British Archæological Society of which he was a member. Subsequently Dr. Woodhouse removed to Putney where he continued to live until the time of his death. He held the appointment of medical officer at the Royal Hospital for Incurables, Putney Heath, a position which he retained for 36 years. He retired from the post on Jan. 1st, 1902, when he was the recipient of an illustrated address bearing the following dedication: "Presented to Thomas James Woodhouse from the patients of the Royal Hospital for Incurables, Putney Heath, on his retiring from the institution after 36 years of faithful service." The inmates also presented Dr. Woodhouse with a gold watch as a mark of their appreciation of his talent and kindly disposition.

The first part of the burial office was sung at Holy Trinity Church, West Hill, Putney, on June 17th. The officiating clergy were the Rev. J. A. Webb and the Rev. C. H. Venning (of Gospel Oak). There was a large congregation, and amongst those present were Mrs. Lenicke (matron of the hospital), the staff, and 17 patients in chairs. The chief mourners were Mr. Sidney Woodhouse, Mr. and Mrs. Vernon Woodhouse, and Mr. Haward Chaplain. The following gentlemen were present to represent the hospital: Colonel Holland, Mr. John Gay, the medical officer; Mr. Fox, Mr. Bellamy, and Mr. W. D. Newton. The body was then taken to the Putney Cemetery, Barnes Common, for interment, the prayers of committal being said by the Rev. C. H. Venning.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At the congregations on June 12th and 17th the following were admitted to medical and surgical degrees:—

Doctor of Medicine.—O. K. Williamson, Trinity; W. B. Winton, Clare; and J. N. Gardiner, Trinity Hall.

Bachelor of Medicine and Bachelor of Surgery.—A. J. Simey, King's; H. V. Pryce, St. John's; H. R. Mayo, Caius; F. W. Hardy and G. H. L. Whale, Jesus; B. L. T. Barnett, St. John's; J. Barnicot, Pembroke; and H. H. Stiff, Caius.

Bachelor of Medicine.—J. E. B. Snell, Caius; H. C. Brown, Emmanuel; G. H. Sedgwick, Sidney Sussex; H. Gordon-Smith, Trinity; B. Spearman and R. Spearman, Caius; and F. E. Shipway, Christ's.

Bachelor of Surgery.—F. Sanger, St. John's; and G. F. Barham and F. G. Bowen, Caius.

Dr. E. Laming Evans, M.A., Trinity, has been awarded the

Raymond Horton-Smith prize for the best M.D. thesis of the year.—Dr. W. H. R. Rivers, St. John's, has been reappointed University Lecturer in Physiological and Experimental Psychology.—Dr. D. MacAlister, St. John's, has been appointed Assessor to the Regius Professor of Physic.

UNIVERSITY OF DUBLIN: TRINITY COLLEGE.—At examinations held at the School of Physic, Trinity term, the following candidates were successful:—

Final Examination: Section A.—Michael J. M'Auliffe, Henry Stokes, Herbert Stone, Douglas B. Thomson, Thomas C. A. Sweetnam, Harold T. Marrable, Philip S. Stewart, Frederick W. Bury, James F. F. Walsh, Cecil J. Wyatt, Thomas King-Edwards, George S. Walton, and Thomas Ryan.

FOREIGN UNIVERSITY INTELLIGENCE.—*Basle:* Dr. Wilhelm His, jun., of Dresden, and formerly of Leipsic, has been offered the chair of Medicine. His father, the well-known professor of anatomy in Leipsic, was for some years on the staff of the Basle Medical Faculty.—*Bordeaux:* Dr. Le Dantec has been appointed to the chair of Tropical Medicine.—*Göttingen:* The Senate has decided to refuse the right of matriculation to female students.—*Heidelberg:* Dr. F. Marschall has been recognised as *privat docent* of Hygiene and Dr. R. H. Weber as *privat-docent* of Physiology.—*Leipsic:* Dr. Riecke has now been recognised as *privat-docent* of Dermatology.—*Odessa:* Dr. P. Borisoff has been appointed Professor of Pharmacology; Dr. V. Masen, Professor of Midwifery and Gynæcology; Dr. M. Mikhailoff, Professor of Special Pathology and Therapeutics; and Dr. Szapjeshko, Extraordinary Professor of Surgery.—*Paris:* Professor Fournier, the well-known syphilologist, is about to retire as he is in his seventieth year. His successor will be Hallopeau.—*Strasburg:* Dr. A. Stolz has been recognised as *privat-docent* of Surgery.

ANDERSON'S COLLEGE MEDICAL SCHOOL, GLASGOW.—The summer session has just closed. It was curtailed by a few days owing to the general arrangements for the Coronation festivities which unhappily were postponed. The number of students matriculated was much the same as that of previous summer sessions and the work performed in the various departments of the school was highly satisfactory to teachers and students alike.

THE HEALTH OF LEICESTER.—Dr. C. K. Millard, medical officer of health of the borough of Leicester, in his report for 1901, just issued, says that undoubtedly the most satisfactory feature of the year's statistics is the exceptionally low rate of mortality—viz., 15·71. This is the lowest on record for the borough with the exception of that for the year 1894. During 1901 the number of marriages solemnised was 1825, equal to a marriage-rate of 17·17 per 1000. The number of births registered during the year was 6169. This is 38 less than in the previous year and 50 less than the average of the previous five years; 3132 of the births were males and 3037 were females. The birth-rate was equal to 29·03 per 1000 of the population. The following are the birth-rates for the previous five years:—1896, 32·0; 1897, 31·63; 1898, 30 56; 1899, 30·61; 1900, 29·75; and 1901, 29·03. "It appears, therefore," says Dr. Millard, "that owing to the continued decrease in the birth-rate and in spite of the increasing population the actual number of children born annually has not only ceased to increase but is actually beginning to decrease. This has already been the case for some years in several of the other great towns—notably, in Derby and Huddersfield." The number of illegitimate births in the borough during 1901 was 210, equal to 3·4 per cent. of the total births. The total number of deaths registered during the year was 3373, but only 3338 were of residents of Leicester—1701 males and 1637 females. Of these, 1098 were of infants under one year of age, giving an infant death-rate of 177·9 per 1000 births. The average for the previous 10 years is 195·4. The infantile mortality, adds Dr. Millard, is rightly regarded as an important index of the sanitary condition of a locality. Unfortunately, in Leicester the rate is unduly high owing to the heavy mortality caused by diarrhœa, and if the deaths registered as due to diarrhœa and enteritis be excluded the infant mortality for Leicester for last year would have been but 129. Under the heading of zymotic diseases Dr. Millard's report contains the following in reference to the "Leicester system" of dealing with small-pox: "'The Leicester experiment' has now been tried too long and been attended with too great success for it to be entirely ignored in considering the question of the necessity for compulsory vaccination. At the same time nothing that I have seen so far has in any way affected my belief that vaccination and revaccination, repeated when necessary, will confer complete protection against small-pox. Indeed, I regard this as not merely a matter of belief but as one capable of absolute scientific demonstration."

HOSPITAL SATURDAY FUND AT EXETER.—At the meeting of the committee of the Exeter Hospital Saturday Fund held on June 24th it was reported that the total amount collected last year amounted to £711. It was decided to distribute £633 amongst the different medical charities of Exeter. Sept. 27th is to be observed as Hospital Saturday this year.

THE LATE MR. A. WADE.—Mr. Arthur Wade died at his residence, Melbourne, Boscastle, Cornwall, on June 27th, in his eighty-second year. He received his medical education at University College Hospital, London, taking the diplomas of M.R.C.S. Eng. in 1843 and L.S.A. in 1871. The deceased had been for many years in practice at Boscastle, where he was formerly medical officer of health, district medical officer, and public vaccinator, but recently he had retired from active work. Mr. Wade was a justice of the peace for the county of Cornwall. He was of a genial and kindly manner and was very popular in Boscastle and the surrounding district.

THE AMENITIES OF NATIONS.—England's latest ally in the Far East has in many ways convinced the continents of the world that she is rapidly levelling up to the highest standards of national progress and well-being, and an instance of the enlightenment of our Japanese allies is afforded us by a well-designed card we have received from Messrs. Z. P. Maruya and Co. of Tokyo, Japan, offering their congratulations on the coronation of His Majesty the King and their sincere wishes for the continued prosperity of the British Empire. Although the unforeseen happened, none the less the friendly spirit is manifested and is worthy of record. We thank our Japanese friends and reciprocate their greetings.

SMALL-POX IN CAMBRIDGE.—During the recent epidemic of small-pox in Cambridge a patient suffering from the hæmorrhagic form of the disease was admitted into the Infectious Diseases Hospital as a case of scarlet fever. Dr. E. Lloyd Jones of Cambridge thereupon wrote or communicated statements to the public press which reflected seriously upon Dr. B. Anningson, the medical officer of health, and "the medical attendant at the sanatorium." Dr. Anningson having proved to Dr. Jones that his statements were unfounded, Dr. Jones wrote the following letter to the *Cambridge Daily News* of June 23rd. The apology, if somewhat belated, is at least full.

To the Editor, the *Cambridge Daily News*.

SIR,—With regard to the letter that I wrote to your paper on March 7th, 11th, 14th, and 21st, I wish to state that the medical officer for the borough has since given me ample and satisfactory explanation upon the matters therein criticised.

I should now like to express publicly my regret at having hastily written on inadequate information in the way I did, and I am glad to say that it was not in any way whatsoever my intention to throw discredit upon the action and conduct of Dr. Anningson.

Yours, etc.,
E. LLOYD JONES.

VACCINATION EXPENDITURE.—At the meeting of the Bideford Board of Guardians held on June 24th a discussion took place with regard to the vaccination expenditure. Some of the guardians expressed astonishment that a number of persons in good positions and living within a quarter of a mile of the public vaccinator's house should have sent for him to revaccinate themselves and their servants at their own residences, and they inquired whether voters would not on this account be debarred from voting at the next election. Mr. Preston Thomas, Local Government Board inspector, thereupon explained that vaccination was not Poor-law relief, that it did not entail any disabilities, and that anyone was entitled to demand vaccination at the public expense. The public vaccinator, however, was not entitled to go to a house to revaccinate people there unless they had previously sent for him.—At the meeting of the Axminster (Devon) Board of Guardians held on June 19th it was reported that the Admiralty had refused to pay for the revaccination of the wives and children of the coastguard at Axmouth.—At the meeting of the Torrington (Devon) Board of Guardians held on June 14th the clerk in answer to inquiries stated that the publication of

the names on the vaccination register would probably lead to difficulties and added that any reporter publishing the names might be made answerable for doing so. Eventually the guardians resolved that the consideration of the vaccination register should take place in committee.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ELECTION OF MEMBERS OF COUNCIL.

THE fourteenth election of Fellows to fill the vacancies in the Council of the College under the new regulations was held at the College, Lincoln's Inn Fields, on Thursday, July 3rd, between 1.30 and 4.30 P.M.

The result of the voting was as follows:—

	Votes.	Plumpers.
MR. H. MARSH	415	7
MR. J. H. MORGAN	393	30
MR. H. H. CLUTTON	311	31
MR. C. W. MANSELL MOULLIN	293	54
MR. JORDAN LLOYD	241	9
MR. J. BLAND-SUTTON	228	14
SIR WILLIAM H. BENNETT	205	4
MR. CLINTON T. DENT	85	0

Mr. Marsh is, therefore, re-elected. Mr. Morgan, Mr. Clutton, and Mr. Mansell Moullin are elected members of the Council.

743 Fellows voted, 19 personally and 724 through the post. 6 proxies arrived too late.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Plumbers' Registration Bill.

THIS Bill, after having passed through the House of Lords, has been dropped. In the House of Commons it never got beyond the stage of introduction.

Proposed Registration of Motor Cars.

A Bill has been introduced in the House of Commons by Mr. Scott Montagu for the registration of motor cars and for the amendment of the law as to the speed at which these vehicles may run.

London Water Bill.

Members of the House of Commons have now before them the report of the Joint Committee on the London Water Bill, and in view of the consideration of the measure in committee of the whole House they have prepared a long list of amendments. There is every prospect of the stage being a protracted one.

The Sale of Butterine.

Mr. Hanbury has undertaken to make several alterations in his Bill with respect to the sale of butterine. Generally speaking, what the Bill does is to apply to this article the provisions of the Sale of Food and Drugs Acts relating to margarine. It defines butterine as butter to which any substance has been added whereby the amount of water in the butter is increased, and to this definition Mr. Hanbury proposes to add these words: "and any water in excess of the proportion prescribed by the regulations in force for the time being under Section 4 of the Sale of Food and Drugs Act, 1899, which shall be found in any butter or butterine sold, or exposed, or offered for sale shall be deemed to be due to the addition of such substance unless the vendor shall prove that it is due to the ordinary process of butter-making." Mr. Hanbury also proposes to exclude Irish salt firkin butter from the scope of the legislation.

HOUSE OF COMMONS.

MONDAY, JUNE 23RD.

Public Health Arrangements in Hong-Kong.

Mr. WEIR asked the Secretary of State for the Colonies if he would state whether the provisions contained in Sections 73 to 80 of the Public Health Ordinance, No. 13, of 1901, relative to overcrowding in the city of Hong-Kong were enforced, and, if so, would he say how many persons had been deputed by the Hong-Kong Government to enforce this Public Health Ordinance.—Mr. CHAMBERLAIN replied: The answer to the first part of the question is in the affirmative. In answer to the second part I can only say that the total number of the sanitary staff of the colony is about 140.

Famine in India.

Mr. LEAMY asked the Secretary of State for India whether, in order to make provision against the prolongation of the present famine in India, which began in July, 1899, he would consider the advisability of inviting Parliament to make an inquiry into the condition of the people affected by the famine, and to ascertain whether more effective means could be employed to deal with it, and also to ascertain whether it was possible to take better preventive measures against future famine; and whether he had any official information showing what the supply of food in India had been during the present famine.—Lord GEORGE HAMILTON replied: The relief given in India to mitigate the distress to which the honourable gentleman refers has, during the last two years, partaken very much of the character of Poor-law relief such as prevails in this country; and the numbers in India in receipt of such relief, in proportion to the population, are much less than those at the present moment in Great Britain receiving similar help. The most effective means of dealing with drought in India, which is the origin of the distress, have been exhaustively inquired into and reported on by the recent Famine Commission, and Railway Commissions are dealing separately with the preventive measures which their respective branches of inquiry suggest. I do not propose to order further inquiries. During the recent famine the supply of food has proved sufficient.

Medical Officers in the Scottish Crofting Counties.

On the motion of Mr. WEIR there was ordered a return "showing the number of medical officers dismissed by parish councils in each crofting county during each of the seven years 1895–1901, the name of the parish council, and the cases in which a cause of dismissal was assigned."

WEDNESDAY, JUNE 25TH.

Hospital Accommodation for Belfast.

Mr. T. W. RUSSELL asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware that in dealing with special hospitals for small-pox patients the Local Government Board insisted upon the buildings being at least a quarter of a mile from any dwelling-house, that being the striking distance of the contagion upon which the English authorities acted; and whether he was aware that at Purdysburn, county Down, where the Corporation of the City of Belfast proposed to erect a temporary small-pox hospital, there were inhabited houses, a dairy, and a national school within the radius as prescribed in England; whether the sanction of the Local Government Board was required or had been given for the erection of this building; and was he aware that the City of Belfast, although a seaport, was without any small-pox or isolation hospital.—Mr. WYNDHAM replied: The requirement pointed out in the first paragraph is insisted upon by the English Local Government Board only in the case of small-pox hospitals provided out of loans sanctioned by it. The sanction of the Irish Department is not required unless in the event of an application for a loan. If such an application be made the Board will consider the question in all its bearings. The board of guardians maintain an isolation hospital in Belfast in which small-pox cases are treated.

FRIDAY, JUNE 27TH.

Grocers' Licences.

During the consideration of the report stage of the Licensing Bill there was much discussion and an important decision on the proposal to place grocers' licences under the control of the local justices like public-house licences. In the present state of things grocers' licences are issued by the Excise authorities. It was decided that existing licence-holders shall not be required to apply to the justices for a licence but that the justices may refuse renewal in a case where they are satisfied "that the licensee has sold surreptitiously under such licence, or has assisted in selling or misrepresenting the nature of the goods sold, or has in any other way, in the opinion of the magistrates, been guilty of misconduct in the conduct of such business."

TUESDAY, JULY 1ST.

The Ventilation of the House of Commons.

Mr. WYLIE asked the First Commissioner of Works what steps, if any, had been taken to improve the ventilation and other sanitary arrangements of the House during the last two months.—Mr. AKERS DOUGLAS replied that the Select Committee recently appointed to report on the ventilation of the House was carefully considering the question, but had not yet finished its investigations. Most of the improvements in the committee rooms, &c., for which provision was made in this year's vote had been carried out, but the completion of the work had not been practicable while the business of the House had been going on.

ROYAL COMMISSION ON ARSENICAL POISONING.

THIS Commission held another meeting on Friday, June 20th, Lord KELVIN presiding.

Mr. ARTHUR R. LING, Fellow of the Institute of Chemistry and Member of the Society of Public Analysts, gave evidence in association with Mr. B. E. R. NEWLANDS, Past Vice-President of the Institute of Chemistry. He said that in the course of a very large experience with malting fuel they had never met with a sample free from arsenic. To determine arsenic in fuel they had taken advantage of the fact discovered by one of them (Mr. Newlands) that when fuel was mixed with a base such as lime or soda and burnt any arsenic it contained was retained with the ash. Their method consisted in burning two portions of the fuel, one portion alone and another mixed with an excess of lime or any other convenient base, and determining the arsenic in a solution in hydrochloric acid of each of the residues thus obtained by the Marsh-Berzelius test. The amount of arsenic found in the residue from the plain fuel represented the fixed arsenic, whilst that found in the residue of the fuel and base was the total arsenic. The difference between these two amounts gave the volatile arsenic. This method had, they believed, come into general use and it had been recommended by the Joint Committee of the Society of Chemical Industry and the Society of Public Analysts. Welsh anthracite coal was so variable in its composition that it was almost impossible to

obtain a representative sample. The chief source of arsenic in all coal was the pyrites or coal brasses. Pyrites occurred in veins and sometimes in the middle of the pieces of coal, so that it was not always possible to detect its presence by the external appearance of the coal. When pyrites occurred in high-grade anthracite containing but little ash, the greater part of the arsenic was volatilised on burning the anthracite unless the latter had previously been treated with a base. The presence of coal brasses in anthracite had long been known and at one time it appeared to have been regarded as one of the advantages of this fuel from a malting point of view, especially for making pale malt. Another source of arsenic in anthracite was the shale which they had found to contain considerable quantities of arsenic. They had a large number of analyses showing that even carefully selected anthracite often contained amounts of volatile arsenic equal to from $\frac{1}{10}$th to $\frac{1}{20}$th of a grain per pound. There could be no doubt, however, that systematic selection of fuel had done much to reduce the amount of arsenic in malt. In the early part of 1901 they met with samples of malt containing $\frac{1}{10}$th to $\frac{1}{20}$th of a grain per pound. Several of these samples had been recently re-analysed and the previous results confirmed. At the present time it was rare to find more than $\frac{1}{100}$th of a grain per pound. If, as they had found, selected anthracite might contain $\frac{1}{20}$th of a grain per pound and if they took it that one part of fuel was required for five parts of malt, which was a fair average, they could account for as much as $\frac{1}{100}$th of a grain per pound of malt, an amount equal to $\frac{1}{7}$th of a grain per gallon of beer of the standard gravity of 1055. If, however, the analysis of anthracite were made with a sample which did not represent the bulk or if that used for firing contained more one day than another chemical analysis as a means of control broke down. In bad samples of anthracite they had found arsenic equal to one quarter of a grain per pound, whilst in a sample containing a large proportion of pyrites they had found volatile arsenic equal to one and one-third grammes per pound. Coke was a homogeneous material and it was therefore much easier to obtain a sample representative of the bulk; but, on the other hand, coke, as a rule, contained more arsenic than the best anthracite. From their experience in the drying and curing of malt they found that by the use of fuel treated with a base such as lime or soda the arsenic in the malt could be reduced to negligible limits. Coke mixed with 5 per cent. of lime in the form of milk of lime was a better malting fuel in regard to the possibilities of contamination with arsenic than was the best anthracite. He was of opinion that it would be valuable to have a statutory requirement as to arsenic in anthracite, but the margin would have to be large in view of the uncertainty of determination. He thought that everything connected with brewing ought to be tested by analysis. It was only last week that he found an American or German glucose which contained no less than one-twelfth of a grain of arsenic per pound.

Mr. R. S. Bevan of Warminster in Wiltshire gave evidence as to malt kilns and their working. He said that he believed it would be found possible to provide in several distinct ways for the effectual arrest of arsenical matter in malt-kilns without recourse to indirect drying—namely, by reducing the velocity of the gases, leaving the fire and providing for a considerable proportion of the air being heated before admixture with the furnace gases, by treating the fuel with basic material with a view to fixation of the arsenic in a non-volatile form in the furnace ash, by cutting off the furnace gases when the fires were stirred, by bringing the furnace gases into contact with basic material at a high temperature in an apparatus which could be easily cleansed, and by arresting furnace dust and uncondensed matter by means of curtains. He had found some oven cokes to be equal to the best anthracite coal, though he had only used the former experimentally.

The Commission then adjourned.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

ARNOLD, GILBERT JAMES, F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Honorary Surgeon to the Torbay Hospital, Torquay.

BLAMEY, J., M.R.C.S. Eng., L.S.A., has been re-elected Medical Officer for Perranwell.

CASSIE, ALEXANDER WHYTE, M.A., M.B., Ch.B. Aberd., has been appointed Medical Officer of Forres Leanchoil Hospital.

COLLIER, JAMES, M.D., M.R.C.P. Lond., has been appointed Assistant Physician to the National Hospital, Queen-square, W.C.

COBLIS, J., M.D. Cantab., has been appointed Public Vaccinator for the Urban and Suburban Districts of Menzies, Western Australia.

DALTON, HENRY MOYER CYRIL, M.B., C.M. Glasg., has been appointed Government Medical Officer and Vaccinator at Murrumburrah, New South Wales, Australia.

ELLIOTT, G. C., M.B., C.M. Edin., has been appointed House Surgeon to the Staffordshire General Infirmary, vice T. Dawson, resigned.

HAWTHORNE, C. O., M.D. Glasg., M.R.C.P. Lond., has been appointed Lecturer on Forensic Medicine in the London School of Medicine for Women.

HEWLETT, H. M., L.R.C.P., M.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Honorary Assistant Pathologist to the Benevolent Asylum, Melbourne, Victoria, Australia.

HILL, ALFRED WILLIAM, M.D. Brux., has been appointed Honorary Surgeon to the Ear and Throat Department at the Adelaide Hospital, South Australia.

HORTON, THOMAS, M.D., B.S. Durham, L.R.C.P. Lond., M.R.C.S., has been appointed Honorary Surgeon to the Torbay Hospital, Torquay.

ICE, THEO. J., M.B. Melb., has been appointed District Medical Officer and Public Vaccinator at Jarrahdale, Western Australia.

JEFFERIES, IAIN, M.R.C.S. Eng., L.R.C.P. Lond., has been appointed First Assistant Medical Officer to the Hendon Sick Asylum.

KING, JOHN, M.R.C.S., L.R.C.P. Ed., J.P., has been re-appointed Medical Officer of Health for Stratton and Bude (Cornwall).

LISTER, THOS. D., M.D., M.R.C.P. Lond., has been appointed Assistant Physician to the Mount Vernon Hospital for Consumption and Diseases of the Chest, Hampstead and Northwood.

MACKELLAR, CHARLES KINNAIRD, M.B., C.M. Glasg., has been appointed President of the State Children Relief Board, New South Wales, Australia.

MALE, HERBERT C., M.D. Edin., has been appointed an Honorary Medical Officer to the Croydon General Hospital.

MISKIN, L. J., M.B. Lond., F.R.C.S. Eng., has been appointed Acting District Medical Officer and Public Vaccinator, Coolgardie, Western Australia, *pro tem.*

O'BRIEN, M. J., L.R.C.P., L.R.C.S.I., has been appointed Certifying Surgeon under the Factory Act for the Mountmellick District of Queen's County.

PHILLIPS, MARY E., M.B. Lond., has been appointed Second Assistant Medical Officer at the London Sick Asylum at Hendon.

RANDELL, ALLAN E., M.B., B.S. Melb., has been appointed Officer of Health at Melville, Western Australia.

REID, MATTHEW ALEXANDER, F.R.C.P. Lond., has been appointed Public Vaccinator for the Metropolitan District of Melbourne, Australia, *pro tem.*

STOCK, W. S. V., M.B., B.S. Lond., has been re-appointed Resident Medical Officer to the Royal Infirmary, Manchester.

THYNE, THOMAS, M.D. Edin., has been appointed Medical Officer for the Mill-corner and Cockfosters District of Enfield Parish.

WRIGHT, HUGH P., M.B., Ch.B. Glasg., has been appointed House Surgeon to Teignmouth Hospital, South Devon.

WYMAN, Dr. H. B., has been appointed Assistant Medical Officer at Cheadle.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

APPLECROSS DISTRICT OF THE PARISH OF APPLECROSS, Ross-shire.—Medical Officer and Vaccinator.—Salary £95, with house.

BATH ROYAL UNITED HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

BIRKENHEAD UNION INFIRMARY, WORKHOUSE, AND SANITORIUM.—Resident Assistant Medical Officer. Salary £120 per annum, with board, washing, and apartments.

BIRMINGHAM QUEEN'S HOSPITAL.—House Surgeon. Salary at rate of £50 per annum, with board, lodging, and washing.

BRIGHTON, HOVE, AND PRESTON DISPENSARY.—Two House Surgeons. Salary £160 per annum, with apartments, washing, and attendance.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—House Surgeon. Salary £120 per annum, with rooms and attendance.

BURNLEY UNION WORKHOUSE.—Resident Assistant Medical Officer, unmarried. Salary £120 per annum, with apartments, rations, washing, and attendance.

CAMBRIDGE ADDENBROOKE'S HOSPITAL.—Senior House Surgeon for six months. Salary at rate of £50 a year, with board, lodging, and washing.

CHARING CROSS HOSPITAL.—Bacteriologist to the Hospital and Lecturer on Bacteriology to the Medical School. Salary £100 per annum, with share of class fees.

CHICHESTER INFIRMARY.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

DEVONPORT ROYAL ALBERT HOSPITAL.—Resident Medical Officer, unmarried. Salary £110 per annum, with board and lodgings.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Glamis-road, Shadwell, E.—Medical Officer for the Casualty Department for six months. Salary at rate of £100 per annum, and luncheon.

FULHAM INFIRMARY, St. Dunstan's-road, Hammersmith, W.—Second Assistant Medical Officer for six months. Salary £80 per annum, with board, apartments, and washing.

GODALMING BOROUGH.—Medical Officer of Health. Salary £75 per annum.

GRAVESEND HOSPITAL.—House Surgeon. Salary £90 per annum, with board and residence.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—Senior House Surgeon for six months. Salary at rate of £60 per annum, with board, lodging, and washing.

HAMPSTEAD HOSPITAL.—Resident Medical Officer for six months. Salary at rate of £120 per annum, with rooms, coal, and gas.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £30, washing allowance £2 10s., with board and residence.

HOSPITAL FOR WOMEN, Soho-square.—Registrar. Honorarium twenty-five guineas.

HULL ROYAL INFIRMARY.—Casualty House Surgeon for not less than six months. Salary £80, with board and lodging.

INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £75 per annum, with residence, board, and washing.

ITALIAN HOSPITAL, Queen-square, W.C.—Anæsthetist.

LANARK COUNTY COUNCIL.—Assistant Medical Officer of Health. Salary £140 per annum, with travelling expenses.

LEEDS GENERAL INFIRMARY.—Resident Ophthalmic Officer. Salary £50 a year, with board and lodging.

LIVERPOOL, CITY OF, INFECTIOUS DISEASES HOSPITALS.—Two Assistant Resident Medical Officers, unmarried. Salary £120 per annum each, with board, washing, and lodging.

LIVERPOOL DISPENSARIES.—Assistant Surgeon, unmarried. Salary £100 per annum, with board and apartments.

LIVERPOOL INFIRMARY FOR CHILDREN.—Assistant House Surgeon for six months. Salary £25, with board and lodging.

LONDON COUNTY COUNCIL.—Medical Examiner. Also Medical Officer to certain of its employees residing in the City of London and in portions of the metropolitan boroughs of Shoreditch and Stepney.

LONDON FEVER HOSPITAL, Liverpool-road, Islington, N.—Physician. Also Assistant Physician.

LONDON HOSPITAL MEDICAL COLLEGE.—Assistant Demonstrator of Anatomy. Salary £90 a year.

LONDON HOSPITAL, Whitechapel, E.—Physician. Also Assistant Physician.

LONDON TEMPERANCE HOSPITAL.—Assistant Resident Medical Officer for six months. Honorarium at rate of 50 guineas per annum, with board, residence, and washing.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Medical Officer. Salary £180 per annum.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Albany Memorial), Queen-square, Bloomsbury.—Second Assistant House Physician. Salary £50 per annum, with board and residence, or £100 a year and board. Also Pathologist. Honorarium 50 guineas per annum.

NEWCASTLE-UPON-TYNE, CITY HOSPITAL FOR INFECTIOUS DISEASES.—Resident Medical Officer. Salary £100 per annum, rising to £150, with board, lodging, &c.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—House Surgeon. Salary £100 per annum, with board and residence.

NOTTINGHAM GENERAL DISPENSARY.—Senior Resident Surgeon, unmarried. Salary £200 per annum, increasing by £15 every year. Also Assistant Resident Surgeon, unmarried. Salary £160 per annum, increasing by £10 every year, with apartments, attendance, light, and fuel in each case.

PARISH OF SAINT LEONARD, Shoreditch.—Resident Assistant Medical Officer. Salary £150 per annum, with rations, apartments, and washing.

PORTSMOUTH BOROUGH ASYLUM.—Assistant Medical Officer, unmarried. Salary £140 per annum, rising to £170, with board, lodging, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Examiner in Dental Surgery. Also a Member of the Court of Examiners.

ST. MARY'S HOSPITAL, Paddington, W.—Assistant Ophthalmic Surgeon.

SEAMEN'S HOSPITAL SOCIETY.—Surgeon at the Branch Hospital in the Royal Victoria and Albert Docks, E.

SOMERSET AND BATH ASYLUM, Cotford, Taunton.—Assistant Medical Officer, unmarried. Salary £160 per annum, rising to £200, with apartments, board, &c.

SOUTH HANTS AND SOUTHAMPTON (ROYAL) HOSPITAL.—Junior House Surgeon. Salary £60 per annum, with rooms, board, and washing.

SOUTHPORT INFIRMARY.—Resident Junior House and Visiting Surgeon, unmarried, for six months. Honorarium at rate of £60 per annum, with residence, board, and washing.

STAFFORDSHIRE GENERAL INFIRMARY, Stafford.—Assistant House Surgeon. Salary £80 per annum, with board, lodging, and washing.

STOCKPORT INFIRMARY.—Junior Assistant House Surgeon for six months. Salary at rate of £40 per annum, with board, washing, and residence.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

SUSSEX COUNTY HOSPITAL, Brighton.—Second House Surgeon and Anæsthetist, unmarried. Salary £80 per annum, with board and residence.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Junior House Surgeon. Salary £50 per annum, with board, lodging, and washing.

WEST LONDON HOSPITAL, Hammersmith-road, W.—House Surgeon for two months. Board and lodging provided.

Births, Marriages, and Deaths.

BIRTHS.

BUNCOMBE.—On 29th June, at the City of London Infirmary, Bow-road, the wife of William Dewey Buncombe, Medical Superintendent, of a son.

CARR.—On June 27th, at 19, Cavendish-place, W., the wife of J. Walter Carr, M.D., F.R.C.P., of a daughter.

EDWARDS.—On June 30th, at Peckham-road, London, the wife of Francis H. Edwards, M.D. Brux., M.R.C.P. Lond., of a son.

GLADSTONE.—On June 25th, at Clarendon Villa, Newton Ferrers, near Plymouth, the wife of Arthur Edward Gladstone, B.A. Cantab., M.R.C.S. Eng., L.R.C.P. Lond., of a son.

HARE.—On June 28th, at The Hermitage, Minchinhampton, Glos., the wife of Major E. C. Hare, I.M.S., of a daughter.

YOUNG.—On June 27th, at Queen Anne's-gate, S.W., the wife of Charles W. F. Young, M.D. Lond., of a son.

MARRIAGE.

ALEXANDER—CREIGHTON.—On June 23rd, Kenneth B. Alexander, M.B., B.S. Lond., to Jane, daughter of William Creighton, of Milford, Surrey.

DEATHS.

BOND.—On the 1st July, at the London Fever Hospital, of scarlet fever, after a few days' illness, Edmund Dela Fosse Bond, M.A., M.B. Oxon., M.R.C.S., resident house surgeon of St. George's Hospital, youngest son of the late Revd. Fredk. H. Bond, M.A., formerly of Marlborough, and Mrs. Bond, of 16, Brock-street, Bath, in the 29th year of his age.

GEE.—On the 27th inst., at 90, Carleton-road, N., Thomas Ernest Gee, F.R.C.P. Edin., F.C.S., &c., of 67, Westbourne Park-road, London, aged 48, second son of the late William Gee of Southwell.

PARKER.—On the 30th June, on board the Royal Mail s.s. *Magdalene*, H. T. Parker, M.D., B.S. Lond., D.P.H., Principal Medical Officer, Prisons Department, Cairo, aged 33.

ROSE.—On June 21st, at Nairn, Dora Florence, the dearly loved wife of Alex Rose, M.B., of 237, Selhurst-road, South Norwood, S.E., and second daughter of the late Harry Brock of South Norwood, aged 26 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

AN ADVERTISING "REFRACTIONIST."

A CORRESPONDENT residing in Colchester has sent us a cutting from the *Essex County Standard* of June 28th, which runs as follows:—

DEFECTIVE EYESIGHT AND ITS RELIEF BY GLASSES.

Expert Eye Examinations daily, at Sight-Testing Office, St. Botolph's Pharmacy,

34, ST. BOTOLPH STREET, COLCHESTER.

Hours:—10 a.m. to 1 p.m.; 3 p.m. to 5 p.m.

An accurate correction prescribed and glasses fitted for all cases of errors of refraction. If relief is promptly sought, and glasses properly used, normal vision results, unless a diseased condition renders oculists' treatment necessary.

Eyes often saved from permanent injury or blindness by prompt medical treatment or the use of glasses.

MR. W. EDES EVERETT,

OCULISTS' CERTIFIED OPTICIAN AND REFRACTIONIST,

Member of the British Optical Association; Fellow of the Worshipful Company of Spectacle Makers; Member of the Pharmaceutical Society of Great Britain.

We should like to draw the attention of the Worshipful Company of Spectacle Makers to the advertisement of this "Oculists' Optician" and "Refractionist." We do not know whether the advertiser is claiming that he himself gives "prompt medical treatment," for his announcement is rather comprehensive than comprehensible; but we are certain that nobody who is not a qualified medical man can possibly prescribe glasses "for all cases of errors of refraction."

"THE SEQUEL TO VACCINATION WITH GLYCERINATED CALF LYMPH."

WE have received a letter from Mr. John H. Bonner, who says that the contradiction of Mr. J. West's story which we published on June 21st on the authority of West's Stourbridge Brick Company is incorrect, Mr. Bonner having, he says, investigated the facts for the *Morning Leader*. Mr. Bonner concludes his letter by saying: "I shall be glad to hear whether, after this explanation, you intend to make the *amende honourable* to Mr. J. West." Will Mr. J. West kindly communicate with us?

AMERICAN PRISON SYSTEM.

To the Editors of THE LANCET.

SIRS,—Can you or your readers kindly tell me the name, &c., of some reliable book on the American prison system on what may be termed the rose-water and massage lines.—I am, Sirs, yours faithfully,

June 27th, 1902. E. B. R.

*** Some information will probably be found in the annual reports of the New York State Reformatory at Elmira.—ED. L.

FUND FOR MEMORIAL TO LATE SURGEON-GENERAL NASH.

The following additional subscriptions to the above fund have been received. The fund will be closed on August 2nd.

	£	s.	d.
Lieutenant-Colonel R. H. Nicholson	0	10	6
Major E. S. Marder, R.A.M.C.	0	15	0
Surgeon-General T. Tarrant, A.M.S.	1	0	0
Previously acknowledged	104	2	6
Total	106	8	0

ASPINALL'S ENAMEL AS A SURGICAL APPLICATION.

WE have received from Messrs. Aspinall and Co. a communication sent to them by a nursing sister at the Station Hospital at Rawal Pindi concerning the use of their white enamel in a case of erysipelas. A patient who was suffering from erysipelas was painted, by the instruction of his medical man, with Aspinall's white enamel, nearly the whole of his face being painted, as can be seen from the photograph inclosed. We have analysed Aspinall's white enamel and find it to be a preparation of zinc-white (the sulphide, oxide, and carbonate forming the basis of many similar enamels) in a medium of oil, so that it will be seen that the application was a very suitable one for the case.

FOR MUTUAL ADVANTAGE.

To the Editors of THE LANCET.

SIRS,—Some friends of mine in Douglas, a small town 100 miles south-west of Kimberley, South Africa, have written to ask if I know

of anyone who wishes to go out to South Africa for his health, suggesting someone suffering from early phthisis pulmonalis. My friends have a vacancy for a gentleman who will have board, lodging, and laundry free in return for two hours' daily tuition of their son, a youth aged 17 years, in general English knowledge. They are loyal Dutch farmers who have suffered severely through the war and are consequently unable to offer any further remuneration than free quarters, &c., in a very comfortable home with fairly liberal table. Not knowing of anyone myself to suit their requirements it occurred to me that amongst your readers there might be one who has a patient who would only be too glad to avail himself of such an opportunity. If so, would he communicate with me, when I should be glad to supply any further details. I inclose my card.

I am, Sirs, yours faithfully,

July 1st, 1902. M.B.

THE LAW FUND.

DR. R. PARAMORE sends us for publication the following letter from the Dowager Lady Jenner, widow of the late distinguished President of the Royal College of Physicians of London:—

"I enclose a cheque for £5 5s. as a contribution to the fund which is being raised to defray Dr. Law's costs in the action brought against him by a patient whom he had treated with the greatest attention and kindness. I feel sure that my husband, if he were living, would have willingly subscribed to the fund and would have felt the greatest sympathy for Dr. Law."

Dr. Glover, at the meeting held for the purpose of helping Dr. Law, referred to the kindness of Sir William Jenner in taking up a case similar to that of Dr. Law where a medical man was badly treated. He held meetings at his own house and by his influence evoked such practical sympathy that even a larger sum of money was obtained than that required for actual costs. The following additional subscriptions have been received by Dr. Paramore, 2, Gordon-square, W.C. Cheques and postal orders should be made payable to the "Law Fund" and crossed London and County Bank, Holborn:—

	£	s.	d.
The Dowager Lady Jenner, widow of the late Sir William Jenner, Bart.	5	5	0
Dr. W. Cyril Haswell	0	3	0
H. J. H.	1	0	0
Mr. Francis Richard Gibbs	0	3	0
Mr. Charles Gaskell Higginson	2	2	0
Mr. Charles Ramsden Salisbury	0	5	0
Mr. Charles F. Rilot ...	0	10	6
Mr. R. G. Gornall and Mr. J. P. J. Gornall ...	1	1	0
Dr. Charles Poulett Harris	0	5	0
Dr. Geo. Granville Bantock	2	2	0
Dr. W. Armston Vice, L.D.S.	0	10	6
Dr. Edward Law	2	2	0
Mr. Thomas Jackson, J.P.	0	4	0
Dr. John Woodman ...	1	1	0
Dr. Wm. Muir Crawford Watson	1	1	0
Mr. John Hargreave Wraith, J.P.	1	1	0
Mr. Thomas Wolverson	0	10	6
Mr. G. Holbrey Hunter	0	10	0
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Dr. Robert Edward Burnet Yelf...	0	5	0
Dr. John Watson	0	10	0
Mr. Francis Decimus Woodhouse	0	10	0
Dr. Jabez Davenport Windle	0	10	6
Mr. Fredk. Abell Humphry	1	1	0
Dr. James Usher Huxley	2	2	0
Dr. Edward W. Diver ...	0	5	0
Bear ye one another's burdens	0	10	0
Mr. Joseph Darrington Willis	0	10	6
Dr. Alfred Tuthill	0	5	0
Mr. H. Darwin Hey ...	0	10	6
Mr. George Garrard ...	0	10	6
Dr. Morgan Richards ...	0	10	6
Dr. John Price Williams	0	10	6
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Mr. Edmund Henry Pottifer	0	10	0
Dr. John Henry Wood	0	10	0
A small but sincere token of sympathy from N. C. J.	0	5	0
Mr. Joseph Henry Waddington	0	5	0
Mr. Eustace Maclean Swanwick	0	5	0
Mr. Francis W. Joynes	0	5	0
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Mr. Henry George Read	0	10	6
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Mr. B. Dutton Taplin ...	0	10	6
Dr. George Arthur Wright	1	1	0
A small but sincere token of sympathy from W. C. T.	0	5	0
Mr. M. Richard Gooding	0	2	6
Mr. John E. Kenyon ...	0	3	0
Dr. John Robert Keith	0	10	0
Mr. Thomas Peter Grosart Wells	0	5	0
Dr. Alfred Kershaw ...	1	1	0
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Mr. Henry Williams, J.P.	5	0	0
Mr. Alfred Herbert Tubby	1	1	0
Dr. William Duncan ...	0	5	0
Dr. William Kemp (for self and father)	1	1	0
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J. C. T.	0	3	0
Dr. W. Waters Stamthorpe	0	10	6
Dr. George Christopher Taylor	1	1	0
Mr. George Wallis... ...	1	1	0
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Mr. Thomas Lambe ...	2	2	0
Mr. William Henry Paine	0	10	6
Mr. John Humphry ...	1	0	0
Mr. Frederick Samuel Lambert...	0	10	0
Dr. James Lawrence ...	0	5	0
Dr. John Poole Kitson...	0	5	0
Mr. William Wallis ...	0	5	0
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Dr. Henry Wilson	0	5	0
A Stockport Sympathiser	0	5	0
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THREAD-WORMS AND APPENDICITIS.

To the Editors of THE LANCET.

SIRS,—About a year ago my daughter, aged seven years had her vermiform appendix removed in the United States. On slitting open the appendix 16 thread-worms were found alive in the interior. Can any of your readers inform me if these worms would be likely to have caused the appendicitis; also, are there many similar cases on record?

I am, Sirs, yours faithfully,

July 1st, 1902. HARLESDEN.

THE "Y" FUND.

SURGEON-GENERAL H. S. MUIR begs thankfully to acknowledge additional donations towards the above Fund from Mr. G. Eastes, Mrs. F., Surgeon-General W. McNamara, C.B., Colonel and Mrs. Carr-Calthrop, I.M.S., Lieutenant-Colonel C. H. Beatson, I.M.S.; Civilian Surgeons (attached to the Royal Army Medical Corps in South Africa) J. G. Bell, D. Munro, F. G. Sharpe, T. H. D. Hale, and J. Woodhouse; and the following officers of the Royal Army Medical Corps: Lieutenant-Colonels G. Brazier-Creagh, T. W. Noding, J. Maconachie, A. T. Sloggett, C.M.G., J. Duncan, and A. P. Hart; Majors H. O. Trevor, S. Butterworth, S. Hickson, H. Carr, G. F. Gubbin, S. Westcott, C.M.G., H. T. Baylor, F. D. Elderton, T. W. O'H. Hamilton, C.M.G., R. C. Thacker, and M. O'Halloran; Captains A. R. Morgan, K. B. Barnett, H. W. K. Read, H. P. Johnson, and E. E. Powell; Lieutenants G. H. Goddard, J. I. W. Morris, W. C. Croly, R. F. Ellery, H. F. Shea, D. L. Harding, R. B. Black, G. H. Usmar, and L. M. Purser; the Medical Officers of General Walter Kitchener's force (through Lieutenant-Colonel Porter); and the Principal Medical Officer and Officers Orange River Colony. The fund now amounts to £368. It may be explained that this is in response to an appeal made privately to members of the profession for benevolent aid in a distressing case which has been described in a letter sent to a limited number of medical men (who would help the cause by kindly "handing on" to *confrères*). Should any reader of THE LANCET desire further particulars with a view to expressing *practical sympathy*, a copy of the letter will be forwarded on application to Surgeon-General Muir, 26, Kensington-gardens-terrace, Hyde Park, London, W.

Ind.—We have referred our correspondent's question to the Scotch Education Department, the secretary to which has replied: "The questions involved bear upon the interpretation of the Education Acts in regard to which my lords have no power to give any authoritative decision. Such questions must, if necessary, be decided by a court of law. Even with this restriction my lords have only intervened and can only intervene in the matter so far as it has been or may be found to affect the administration of the Education Acts in particular cases. They can offer no opinion whatever regarding it as bearing upon claims made by medical officers, as this is entirely outside their province." In a similar matter coming under the London School Board the procedure is as follows. The duty of a school board is to see that the children attend school. If a child is absent the board may demand that the child's parent should show cause for his or her absence. If the parent cannot do this by means of a medical or other certificate the board can summon the parent before a magistrate. But a school board has no power to demand a medical certificate for the absence of a child from school. The London School Board states on the forms of medical certificates which it supplies (although it has no power to demand such certificates) that it will not be liable for any expense connected with such certificates. We do not remember that the point has hitherto been decided by a court of law.

Sigma.—We do not know any book but one dealing exclusively with the subject, although chapters on the subject are found in many, especially American, works. The book in question is a small pamphlet written by Mr. Maurice C. Hime, M.A., LL.D., and published by Messrs. J. & A. Churchill.

X. Y. Z.—As our correspondent found relief from strychnine under the same conditions some years ago we think that he might very well try it again—combining the use of it with nitro-glycerine if necessary.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

During the week marked copies of the following newspapers have been received:—*Daily Express* (*Dublin*), *Torquay Directory*, *Yorkshire Mercury*, *Local Government Chronicle*, *Sanitary Record*, *Derbyshire Courier*, *Surrey Advertiser*, *Local Government Journal*, *Carpenter and Builder*, *Rotherham Express*, *Liverpool Daily Post*, *Journal of Tropical Medicine*, *Westminster Gazette*, *Knowledge*, *Broad Arrow*, *Torquay Times*, *Midland Express*, *Army and Navy Gazette*, *Weekly Free Press* (*Aberdeen*), *Bristol Mercury*, *Madras Journal*, *Reading Mercury*, *Mining Journal*, *Herefordshire Mercury*, *Daily Telegraph*, *Le Progrès Médical*, *Scientific American*, *Literary Digest*, *Gazzetta degli Ospedali e delle Cliniche*, *Deutsche Medicinische Wochenschrift*, *New York Medical Journal*, *Journal of the American Medical Association*, &c.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 3rd, 1902.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation Vacuo.	Maximum Temp. Shade	Min Temp	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
June 27	30·14	S.E.	...	129	84	66	65	70	Fine
,, 28	30·10	S.E.	...	129	87	66	64	71	Fine
,, 29	29·95	S.E.	...	124	86	62	71	80	Fine
,, 30	29·96	S.	0·01	127	85	61	62	69	Fine
July 1	29·87	W.	0·11	119	74	60	58	69	Overcast
,, 2	30·18	N.	0·46	103	64	51	51	56	Cloudy
,, 3	30·27	S.W.	...	107	66	52	55	59	Hazy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (7th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.) West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.).

WEDNESDAY (9th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

THURSDAY (10th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (11th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square, (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.).

SATURDAY (12th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

WEDNESDAY (9th).—DERMATOLOGICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—5.15 P.M. Demonstration of Cases of Interest.

THURSDAY (10th).—BRITISH GYNÆCOLOGICAL SOCIETY (20, Hanover-square, W.).—8 P.M. Specimens will be shown by Mr. Jessett, Dr. Hodgson, Dr. Purcell, and others. Papers:—Mr. B. Jessett and Dr. H. Hodgson.

FRIDAY (11th).—BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION (11, Chandos-street, Cavendish-square, W.).—4 P.M. Cases and Specimens will be shown and Papers read by Mr. L. Brown, Dr. W. Wingrave, Dr. Abercrombie, and others.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (7th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. T. Colcott Fox: Clinique. (Skin.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Beddard: Methods and Significance of Examination of the Blood.

TUESDAY (8th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. S. Taylor: Clinique. (Medical.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Russell: The Examination of the Stomach and its Contents.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury).—3.30 P.M. Dr. J. Taylor: Anomalous Forms of Tabes Dorsalis.

WEDNESDAY (9th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Berry: Clinique. (Surgical.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. McAdam Eccles: Surgical Anatomy.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Dr. Acland: Subphrenic Abscess and Pneumothorax.

THURSDAY (10th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Keetley: Acute Intestinal Obstruction.

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Dr. Poynton: Simple and Malignant Endocarditis in Children.

CHARING CROSS HOSPITAL.—4 P.M. Dr. M. Davidson: X Ray Demonstration. (Post-Graduate Course.)

FRIDAY (11th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. T. Collins: Clinique. (Eye.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Baldwin: Treatment of Injuries.

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It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

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Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1902, which was completed with the issue of June 28th, and the Title-page to the Volume, are given in this number of THE LANCET.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1902 will be ready shortly. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

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X.—X. Y. Z.

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